Maps4Society
solutions for user-oriented and smart geo-information infrastructure

Guidelines

Call for Proposals for Co-operation Programme
STW-Rijkswaterstaat-Kadaster-NSO-NCG

Call open for pre-proposals and KIPs:
between 16 December 2013 and 17 February 2014, 12.00 hours
Call open for full proposals:
between 31 March and 12 May 2014, 12.00 hours

Version 15: 13 December 2013
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1. Introduction

Technology Foundation STW fosters collaboration between academic and industrial researchers. STW and a consortium of Rijkswaterstaat, the Kadaster, the Netherlands Space Office (NSO), and the Netherlands Geodetic Commission (NCG), together the M4S Partners, have agreed to initiate the Cooperation Programme Maps4Society (M4S), the main focus being on solutions for user-oriented and smart geo-information infrastructure.

The programme contributes to the strategic goals of the partners and enables companies to develop new business using location-related information. It fits in the ICT Roadmap formulated in the framework of the top sectors policy which includes, for example, the roadmap of other top sectors e.g. Water.

The M4S partners, also striving for innovation in the organisation of the programme and wanting to involve the relevant fields, have encouraged as many people as possible from different backgrounds to propose ideas for innovative approaches to the programme theme. To this end they called for Expressions of Interest on the M4S website (www.maps4society.nl), to be used for improvement of the text of this call.

Partners in Maps4Society

Rijkswaterstaat is the executive arm of the Dutch Ministry of Infrastructure and the Environment (I&M). On behalf of the Minister and State Secretary, it is responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands such as the national waterways and roads infrastructure. It facilitates the smooth and safe flow of traffic, keeps the national waterways system safe, clean and user-friendly, and protects the country against floods. Geo-information plays a crucial role in the various activities.

The Kadaster - Land Registry and Mapping Agency, is an independent governing body, under the political responsibility of the Minister of I&M. The Kadaster collects and registers administrative and spatial data of property and the rights involved. This also includes ships, aircraft and telecommunication networks. The Kadaster also maintains the Key Register Cadastre and Topography and is a node for e-government. Rijkswaterstaat and the Kadaster together, are responsible for the maintenance of the national reference coordinate system: Rijkswaterstaat for the vertical reference via NAP (Amsterdam Ordnance Datum), and the Kadaster for the horizontal reference via the RD system (national triangulation system).

NSO was established by the Dutch government in October 2009, to develop the Netherlands’ space programme and to activate that programme. Since March 2012, the NSO has been operating the Satellite Data Portal, which provides Dutch users with free access to current, raw satellite data from the Netherlands.

NCG coordinates and initiates fundamental and strategic research in geodesy and geo-information in the Netherlands. The NCG advises on general policy issues related to geodesy and geo-information, stimulates the spread of knowledge in these fields and coordinates the geodetic infrastructure of the Netherlands.

Technology Foundation STW is the Netherlands funding organisation for the engineering and application-oriented sciences. STW is proud to announce this programme with Rijkswaterstaat, Kadaster, NSO and NCG, in which we hope to stimulate collaboration of a broad spectrum of parties towards new economic activity for which the Programme partners may act as launching customers.

Budget

The total budget for this call is € 2,74 million. This budget is brought together by Technology Foundation STW (€ 1,5 million), and the other partners (€ 1,24 million). In addition private in-kind contributions of companies/organisations must be added to the individual project budgets.
2. Call description

This Cooperation Programme focuses on innovative research, development and utilization into solutions for user-oriented and smart geo-information infrastructure.

We invite academic scientists to submit pre-proposals for research projects that aim to answer the scientific and application challenges as described in Appendix 1. To be clear: we are looking for research, leading to innovation and breakthroughs in application areas. An innovation is “something original, new, and important - in whatever field - that breaks in to (or obtains a foothold in) a market or society” [Wikipedia; based on Frankelius, P. (2009), Questioning two myths in innovation literature, Journal of High Technology Management Research, Vol. 20, No. 1, pp. 40–51].

In order to achieve the necessary focus, geo-information research areas are combined with application areas. Proposals can be submitted in the research areas and application areas indicated in the table below and further defined in the Maps4Society programme plan (see Appendix 1).

<table>
<thead>
<tr>
<th>Research Areas</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic data and harmonisation</td>
<td>Object life cycle management</td>
</tr>
<tr>
<td>Manage Big Data</td>
<td>Water management</td>
</tr>
<tr>
<td>Data quality assessment</td>
<td>Deformation monitoring</td>
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<tr>
<td>Satellites-as-a-service</td>
<td>Crisis management</td>
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<tr>
<td>Volunteered geographic information</td>
<td>Smart cities / Human environment</td>
</tr>
<tr>
<td>Geo-information infrastructure governance</td>
<td></td>
</tr>
</tbody>
</table>

We are inviting applicants to submit project proposals with the following characteristics:

1. addressing at least one of the application areas mentioned in section 2 of the programme plan by advancing at least one of the major research areas mentioned in section 3 (i.e. fitting into at least one of the cells in the table);
2. being innovative, not only in terms of scientific approach, but also, for instance: creative consortium and innovative collaboration, new data sources or new business processes;
3. having a convincing probability of research results to be utilised by the consortium partners, or benefitting society, or leading to new economic activity;
4. being multidisciplinary, involving at least two research groups from two different disciplines;
5. using multiparty research, including science, governance and companies (the government and the business community can participate “in kind”);
6. preferably involving Master and Bachelor students;
7. preferably involving universities of applied sciences (HBO);
8. Small innovative project (KIP – Dutch acronym for Kleine Innovatieve Projecten) or PhD/Postdoc project (see also the chapter below on Procedure: Budget and Duration).
Contribution to the programme

Each cooperation project will contribute to the coordinating and cohesion stimulation activities as described in the programme plan and to be developed by STW and the PC during the course of the programme. A sum of at least € 50,000 has been reserved in the overall programme budget for general programme activities. Examples are the attendance and presentation of project results at possible Maps4Society programme conferences and events, input for a possible programme website, etc.

3. Utilisation

STW-funded research generates valuable knowledge. In addition to excellent science, STW aims to promote the application of knowledge. The term used by STW to refer to the set of activities aimed at maximising the possibility of research results being applied by third parties is ‘utilisation’. In order to promote utilisation in addition to scientific quality, STW sets up a user committee for every project.

STW expects applicants to actively collaborate towards promoting utilisation and towards STW’s objective of transferring knowledge to users. Users and user committees play a crucial role in utilisation.

To stimulate the development of value-adding products and applications, a knowledge and utilisation programme will be set up. Knowledge, development and application will be brought together in meet-and-match sessions. Consequently R&D spending will be converted into the commercialisation of services and products. To create a learning community for knowledge dissemination and for the anchoring of results, a Maps4Society User Group will be formed, with a clear link to existing user panels and platforms like IIPGeo, IIPBouw and IIP Sensor networks. Utilisation and co-creation is stimulated by this M4S User Group. If needed, the individual projects will be supported by an individual user-reflection group. A minimum budget of 10% will be apportioned to the utilisation programme. Besides that, as a responsibility of the project, 10% of the project budget must be allocated for knowledge dissemination and utilisation.

Users

Users of research are defined as natural persons or legal persons (at national or inter-national level) who are able to apply the results of the research.

A distinction is sometimes drawn between direct users, usually companies, and end users. In that case, it is not sufficient to designate end users only. It is STW’s explicit intention that potential technology users and end users outside the immediate circle and outside the research field of the researchers submitting the proposal should be involved in the project from beginning to end. Users should be able to apply the knowledge generated by the research in the medium to long term. (Potential) users should be indicated in the utilisation section of the research proposal.

Open Innovation

This program intends to stimulate the utilization of the outcome of the research projects. Users and third parties will have open access to these results (without any requirements for financial compensation), which in many cases will be intermediate products on top of which value-adding products, applications and services can be built. Experience of the last decades shows that Geo-information and Geo-ICT form a fruitful domain for open innovation. Users and developers, often from outside this domain, generally see opportunities for new applications that were not anticipated before. In addition, the culture in the geo-information sector is one of cooperation. Via the open innovation strategy, far more parties, also from outside the direct network, have the possibility to create value for society with the results from this programme.

For this reason STW and the consortium partners require the applicants and the users to agree with making all results of the research available to everybody. Resulting software will have to be made available as open source
software. The applicants are asked to detail in their project proposal how this public availability will be implemented in their project.

4. Assessment procedure

The submission and evaluation process is divided into two separate, consecutive stages: a call for pre-proposals followed by a subsequent call for full proposals. The pre-proposals will be evaluated by the Programme Committee (PC), which will advise the proposers. The full proposal will be sent to independent experts for comments. In case there are more than four times as many proposals as can be funded, the PC may decide to make a pre-selection of proposals to be admitted to the full evaluation procedure.

Research pre-proposals and KIP proposals may be submitted between 16 December 2013 and (deadline) 17 February 2014, 12.00h (noon), full proposals between 31 March 2014 and (deadline) 12 May 2014 12.00h. Research proposals received after the deadline will not be accepted. The assessment procedure will be conducted by STW and the awarded projects will be under STW management. If the application satisfies the formal requirements and submission criteria, STW shall take the research proposal into consideration. For the global timeframe, see Appendix 7. In the event that a very large number of proposals is submitted and pre-selection is required, the processing period may increase.

In order to strengthen the utilisation chances in the programme, a permanent Advisory Board (AB) will be formed, representing industrial and societal stakeholders. AB members may be involved in the evaluation of full proposals.

Matchmaking event

- The matchmaking event, which took place on 8 November 2013, gave potential researchers the opportunity to get more detailed information about the objectives, contents and procedural issues of the M4S programme. Representatives from the M4S consortium, industry and the sciences were present. The matchmaking process itself and the Expressions of Interest submitted in advance are seen as an innovative step in the preparation of the programme description as well as the project proposals. The aim was to create opportunities for the development of innovative and surprising proposals. For this reason, students and organisations outside the direct network were also encouraged to participate. A report of the matchmaking, pdf's of the EoI's, and the presentations and movies of the pitches can be downloaded on the website www.maps4society.nl.

- During the matchmaking event, multidisciplinary and multiparty matchmaking was encouraged. Other supporting organisations: semi-commercial and commercial research institutes or companies and government other than the Maps4Society partners are more than welcome to participate in projects.

Budget and duration

For this programme a total budget of € 2.74 million is available. A fund of at least 50 k€ has been reserved for the execution of programme cohesion activities. The PC can decide not to grant the full budget. A project can last up to a maximum of 6 years.

For quick wins’ it’s also possible to propose small innovative projects (KIPs: Kleine Innovatieve Projecten), especially for spin-off of research which has already been done. 500 k€ will be reserved for KIPs.

The project budget should not exceed 500 k€ for regular projects and 50 k€ for KIPs. The PC can decide to maximize the budget available for KIPs in this call. Possibly, a part of the budget will be reserved for a second call for KIPs towards the end of the programme.

Pre-proposals and KIPs

Pre-proposals and KIPs must be written in accordance with the formal guidelines in chapter 7. They consist of a short description (at most 4 A4 pages) of the proposed research, a utilisation paragraph and a breakdown of the
estimated budget needed for carrying out the research. The PC will evaluate the pre-proposals and KIPs with regard to scientific quality, utilisation perspective and fit of the proposals into the programme (for the programme description see Appendix 1; for a description of the evaluation criteria, see Appendix 4).

This evaluation will lead to one of the following outcomes:
1. A ranking and go or no-go advice from the PC to the STW Board for the KIP proposals.
2. A positive or a negative advice from the PC to the researchers for the submission of full proposal.
3. Advice from the PC to the researchers to consider submitting a joint proposal, in case several pre-proposals for research projects target the same subject.

Full proposals

The submission of a full proposal is limited to those that have submitted a pre-proposal. Full proposals must be written in accordance with the formal guidelines in chapters 7 and 8. They consist of a detailed description of the expected results, planning of the research, theoretical framework and a utilisation section. The utilisation section should include the important industrial challenges that will be solved, the timeframe to implementation, the expected bottlenecks during the implementation and the details of the open-innovation approach. Maps4Society partners can be contacted during preparation of the proposal (see contact details below).

The evaluation and selection procedures are described in Appendix 4.

Formal requirements

STW confirms receipt of the research proposal. It then verifies the formal requirements to determine whether the research proposal is eligible for consideration. If the relevant conditions (see section on ‘Guidelines for applicants’) are not fulfilled or the information requested is incomplete, the research proposal will not be considered. In that case, STW returns the research proposal to the main applicant with a request to provide adjustments or additional information within 10 working days.

Additional submission criteria are:

- Proposals should fit within the theme of the call, addressing at least one of the application areas mentioned in section 2 of the programme plan by advancing at least one of the major research areas mentioned in section 3 (i.e. fitting into at least one of the marked cells in the table on page 5);
- Collaboration between research groups from different disciplines is mandatory. This collaboration can be between research groups from different faculties at the same university or between research groups from different universities.
- The research should involve science, governance and companies (i.e. take place in the ‘golden triangle’; the government and the business community can participate “in kind”).
- Proposal should be innovative, not only in scientific approach, but also for instance in terms of: creative consortium and innovative collaboration, new data sources or new business processes.
- The research should have a convincing probability of research results to be utilised by the consortium partners, or benefitting society, or leading to new economic activity.

Not compulsory but seen as a plus are:

- involvement of Master and Bachelor students;
- involvement of universities for applied sciences (HBO)

Only those proposals that satisfy the formal requirements and the additional submission criteria, possibly after changes within the set deadline of 10 working days, will be admitted to the rest of the procedure. The main applicant will be informed approximately 15 working days after the project registration as to whether the research proposal will be taken into consideration.

Pre-selection

If at least four times as many full proposals are submitted as can be financed, STW reserves the right to conduct a pre-selection. The pre-selection is conducted in order not to burden the referees and assessment committee.

Pre-selection takes place by the Programme Committee that evaluates proposals on their scientific quality and utilisation perspective, as well as their suitability within the call.
Assessment by referees

Proposals that were assessed during the pre-selection procedure as being of sufficient quality, or all proposals if no pre-selection took place, will be submitted to approximately three (inter)national experts in the relevant specialist area. These referees are drawn from the scientific world, large research institutes, and industry. Referees remain anonymous. They assess the proposal on the basis of specific questions about scientific quality, utilisation perspective and fit with the themes of the call (see Appendix 4). STW recommends that applicants anticipate these questions in the research proposal.

STW does not use a non-referee list, which allows certain referees to be excluded in advance. However, the applicant(s) may ask STW to exclude up to two people or organisations from acting as referees. STW will grant this request only if the provision of information from the research proposal to that referee might obstruct the utilisation. STW combines the individual referees’ comments, anonymised and if necessary paraphrased, into a 'basis for a protocol'.

Although not obligatory it is appreciated if applicants provide the contact details of 5 potential independent reviewers for the research proposal. This may also be done via a separate appendix in pdf format. The suggestions for reviewers should not be part of the research proposal.

Applicants’ rebuttal

STW sends the ‘basis for a protocol’ to the main applicant with a request to respond to the reviewers' comments. The main applicant responds to each question or comment individually. The combined reviewer's comments including the responses from the applicant(s) form the protocol used by jury members in arriving at their assessment.

Jury procedure

The Programme Committee (PC) comprises five members from Maps4Society and five independent academic experts on behalf of STW (see Appendix 4). The PC will prioritize the proposals. In a first step, the research proposals and associated protocol are sent to the PC members. Each PC member individually assigns three marks to each proposal that carry equal weight for the prioritisation of the proposals: one for scientific quality, one for utilisation (perspective) and one for the fit with the themes of the call (see chapter 2 and Appendix 1). Proposals are considered for financing only if they score no higher than 4.0 for the "utilisation", "scientific quality" and "fit with the call themes" assessment criteria, whereby the sum of these numbers may not be higher than 10.5. You will find an explanation of the meaning of the quality numbers in Annex 4. Based on the average marks for each research proposal, the PC will discuss the proposals in a meeting and arrive unanimously at a ranking.

Decision making

The final decision on awarding of the research proposal is taken by the STW Board. The Board largely bases its allocation decisions on the prioritisation of the research proposals. The order established by the PC ranking is the starting point for this. A secondary consideration is the budget available for the call. The Board does not assess the scientific content of the research proposals.

STW/NWO Code of Conduct on Conflicts of Interest

STW asks active researchers from research institutes and specialists from other knowledge-intensive organisations to participate in assessment procedures. These people are themselves involved in on-going or new research and often belong to large organisational associations and research networks. Therefore, any conflict of interests, or anything that remotely resembles this, must be avoided in the assessment of research proposals.

To ensure a fair assessment and transparency for applicants, STW uses a code of conduct on conflicts of interest that is in line with the NWO Code of Conduct on Conflicts of Interest. This code identifies possible forms of conflicts of interest and indicates the steps to be taken to avoid conflicts of interest. Parties subject to the code of conduct are: referees, jury members, committee members, members of decision-making bodies and STW officers.
5. After award

Proposals awarded funding will be included in the management organisation of STW. Project leaders and staff must state STW and M4S as the financer in all output related to their project (such as publications and presentations).

The main applicant becomes the project leader. In the case of large projects, it is necessary to appoint separate sub-project leaders. If the proposal is successful, each research institute involved receives an award letter with appendices. This sets out the legal and financial conditions of funding and should be signed individually for approval by each research institute. The credits for materials, travel and investments are initially allocated for up to two years. The personnel credit per post is initially allocated for up to three years. STW reserves any remaining funds for the continuation after two years.

Start and starting date of the project

The credits allocated do not become available until after the necessary documents have been signed and received by STW and all relevant award conditions have been fulfilled. The starting date of the project is the date on which an initial expenditure of allocated funds is undertaken. This is generally not the date of award. It usually relates to the appointment of the first staff member at the project’s expense.

User committees

To promote the effective transfer of knowledge generated by the research to users, STW sets up a user committee for every research project in consultation with the project leader. User committee meetings are attended by the applicants/co-applicants, project/subproject leaders, the researchers temporarily appointed to the project and the representatives of the consortium and potential users. The project leader acts as chairman and STW runs the secretariat. STW may change the composition of the user committee in the course of a research project, if there are grounds to do so.

The committee can advise the project leader on the direction the research should take in order to promote the application of the results. The project leader always holds ultimate responsibility for the realisation of the research in accordance with the approved project plan. The instructions for participants in a user committee are included in the ‘Task and Method of Working of STW User Committees’ (see: www.stw.nl).

The members of the user committee are formally invited by STW to sit on the user committee. Those participating in the user committee commit themselves to the conditions included in the ‘Task and Method of Working of STW User Committees’ (for example with respect to confidentiality of the information and how to deal with the results from the project).

Reporting

The project leader reports on the progress of the project twice a year, in writing, and the user committee then meets to discuss the progress made. As an exception – to be decided by STW – the user committee may meet less frequently.

Utilisation of the research results is always on the meeting agenda. It covers collaboration with (potential) users and the commercialisation of the knowledge generated, as well as its protection if this is considered necessary.

The consortium will strive for maximum dissemination and use of the results from this programme.
Continuation
In the case of projects with a term of three years or more, the user committee advises STW on the continuation of the project based on progress made. On that basis, STW decides on the allocation of the credits reserved at the time of award.

Extension
An extension after the end of a project is possible only in very limited cases. The prospects in terms of utilisation are crucial in this respect. From the utilisation perspective, funds remaining on the project can be used to extend one staff position (1 fte) for a period of up to three months. If the extension requires an increase in the budget, co-funding by (one of the) users is a prerequisite. This co-funding is subject to the same criteria as co-funding on submission of a research proposal. The STW contribution is inclusive of the funds remaining on the project and is subject to an upper limit of 50% of the total costs for the extension of the project.

Termination and termination date
The termination date of a project is the date on which the last temporary appointment is terminated.

The project leader then receives two final forms from STW to round off the project in terms of both content and funding. Unallocated credits cease to be valid after the end of the project. The summaries requested in the final form are used for the purpose of publication in STW’s utilisation report. STW publishes an annual utilisation report giving progress updates 5 and 10 years after the start of a project.

Discontinuation
Having consulted the M4S Consortium, STW may discontinue a project before the official termination date if the obligations and/or funding conditions are not or are no longer fulfilled, or if the scientific quality of the research and/or utilisation of the results of the research are inadequate.

6. Further information

Contacts
The STW contact for this call will be:

Technology Foundation STW
Dipl.-Phys. C.N.M. Jansz
Phone +31 (0)30 600 1290
e-mail m.jansz(at)stw.nl
internet www.stw.nl

7. Guidelines for applicants

As a division for the Technical Sciences (TW), STW is part of the Netherlands Organisation for Scientific Research (NWO; see also www.nwo.nl). As such, STW provides indirect government funding. STW funds costs of
personnel temporarily appointed to the project at the research institute and project-specific costs of materials, travel and/or equipment. The research institute is responsible for co-funding from direct government funding and hence for the necessary infrastructure and the supervision of project workers.

If an applicant/co-applicant cooperates with other institutes not eligible for STW funding, such as TNO or a foreign university, the non-eligible institutes are responsible for their own costs.

Main and co-applicants

On approval of the project, the main applicant becomes the project leader and bears ultimate responsibility for the realisation of the research including the utilisation plan. Co-applicants must play an active role (associate supervisor and/or daily supervision of researchers appointed to the project) in the realisation of the project and may be designated as sub-project leaders in the event of several participating research institutes.

Who can act as main and co-applicants?

- Assistant, associate and full professors with a tenured position at:
  - Dutch universities (or with comparable positions at the university medical centres)
  - KNAW and NWO-institutes
  - the Netherlands Cancer Institute (NKI)
  - the Max Planck Institute for Psycholinguistics in Nijmegen
  - Dubble beamline at the ESFR in Grenoble
  - NLB Naturalis

- Researchers with a tenure track appointment. STW defines a tenure track appointment as an appointment for experienced scientific researchers with prospects of permanent employment and a professorship in due course. The tenure track appointment must be confirmed in writing and funded from structural resources. STW will verify that the appointment meets these conditions and that it is guaranteed for the term of the project.

Main and co-applicants with a part-time appointment

- Main applicants and co-applicants employed on a part-time basis should in any case have access to sufficient university facilities and budget to carry out the project properly.
- Main applicants and co-applicants should carry out STW research while they are working for the research institute. If this is not the case, the other employer should sign a waiver so as to guarantee knowledge ownership by STW and the research institute(s).

Who cannot apply?

- Personnel with a zero-hour appointment
- Personnel with a temporary employment contract (e.g. postdocs)
- Emeritus professors
- Personnel of institutes with an applied or technological objective, such as TNO, the Large Technological Institutes (GTIs) and the non-university part of the Wageningen University and Research Centre (WUR)
- Personnel of a research institute funded by a public-private targeted grant
- Personnel of foreign research institutes

Drawing up and submitting the pre-proposal

The project outline – which must not exceed 4 A4 pages – must be written in English using a minimum font size of 10 points in Arial font or similar.

STW must receive your proposal as through the electronic submission system IRIS(https://iris.stw.nl/iris/servlet/iris?app=stw).

The structure must be as follows:
‘Cooperation Programme Maps4Society’ to be stated on the front page in the top left-hand corner
1. Title
2. Acronym (if any) or short title (maximum 2 words)
3. KIP proposal: yes or no
4. Names and addresses of the applicants. STW submits the official correspondence to the main applicant. This is the first applicant mentioned and should be the same as the one mentioned in the full proposal. STW assumes the main applicant will supervise the project. He or she will be the project leader and holds the final responsibility for the execution of the research and the utilisation plan
5. Expertise of the applicants including a maximum of 5 key publications
6. Indicate which research and application areas the proposal fits into and which questions will be addressed in the proposal (referring to the programme plan) (at least one box in the table on page 5, combinations are also welcome)
7. Objectives of the project
8. Concise description of the expected results and the implementation of these within the industry and/or society; potential business partners (and if possible some estimate of expected economic revenues); the way open innovation will be implemented in the project.
9. Provisional patent search results: these must reveal that there is 'freedom to operate' i.e. no infringement of existing property rights of third parties
10. Preliminary budget forecast
11. References (if applicable)

Drawing up and submitting the KIP proposal
The same rules apply as for pre-proposals. In case we receive many questions regarding the KIPs during the matchmaking meeting, additional guidelines will be provided in the M4S Newsletter.

Drawing up and submitting the full research proposal
Full research proposals should be submitted electronically via STW’s electronic grant application system IRIS.

An application consists of two parts:
1. a factsheet containing the key details of both the applicant(s) and the application (including name and address details, title of the research and a summary in English);
2. the application form containing the other information requested. When you submit the factsheet electronically, you also append the completed application form in PDF format. Other accompanying appendices should be sent separately in PDF format (without protection). The factsheet together with appendices is regarded as the research proposal.

Although not obligatory it is appreciated if applicants provide the contact details of 5 potential independent reviewers for the research proposal. This may be done via a separate appendix in pdf format. The suggestions for reviewers should not be part of the research proposal.

Only research proposals that are submitted electronically will be considered.

Format
The proposal should not exceed twelve pages in A4 format (minimum Arial 10 point or similar font), excluding references and appendices. If there is more than one participating research institute, the limit is fifteen pages. The application should be in English. In Section 4.1 of the application form, additional sub-chapters may be added.

The information entered should be complete and correct. Incomplete forms or forms that exceed the maximum permitted length may lead to your application not being considered.

8. Notes relating to the application form
1. Key information

1.1 Further details main applicant
The name and address of the main applicant are given on the factsheet (Dutch name). State the additional information, including English name of the organisation/division of the organisation, percentage of full-time appointment and confirmation of permanent employment.

1.2 Further details co-applicants
State the name and address of the co-applicants, giving both the Dutch and English names. Also state the additional information, including % of full-time appointment and confirmation of permanent employment.

1.3 Title
State the title of the project and an abbreviated title of maximum 2 words.

1.4 Key words
State the specific keywords for the research and specialist area, including popular scientific terms.

2. Summaries
Summaries should be clear to non-specialists, such as jury members. Jury members will base their verdict primarily on the opinion of the experts as laid down in the protocol, summaries and utilisation section. It is therefore vital that these sections are worded clearly and concisely, so as to be convincing to jury members.

In addition, these sections may be used by STW for publication purposes; the confidentiality of the data will be taken into account at all times.

2.1 Research summary
On half an A4 page, describe the research question, the research and the anticipated results. Indicate how this research contributes to the programme goals.

2.2 Utilisation summary
On half an A4 page, describe the utilisation. State what the jury needs to know about utilisation, the approach taken to it and the likelihood of it being achieved.

2.3 Summary STW’s website
Add a general summary in English for STW’s website (10 lines with a number of keywords; be aware of risks with respect to intellectual property).

3. Current composition of the research group
State the composition of the team which will realise the research and the distribution of tasks and responsibilities.
- Indicate the intended sub-project leaders in the participating research institutes, in addition to the project leader.
- Indicate which of the co-applicants per research institute and/or research group is the research leader and who is responsible for supervising the researchers.
- In the case of a part-time appointment of a (co-)applicant which is less than 0.4 fte, the proposal should indicate which of the permanent staff is responsible for the day-to-day supervision of the project workers.
- The project leader is responsible in all cases for coordination and communication between the participating institutes/research groups/researchers.

In this section also indicate the following:
- Will students (at Bachelor and/or Master level) be included in the research? If so, from which institutions and in which way?
- If not already included as co-applicant, will a university for applied sciences (HBO) be in any way included in the research or the utilisation process?
4. **Scientific description**

This section should contain sufficient information to enable an expert reviewer to assess the quality of the research proposal.

4.1 **Research contents/Introduction**

Describe the underlying scientific basis and the content of the project. Indicate the methods and techniques to be used to tackle the problem, the knowledge already available, what has still to be developed and the instruments or models to be used to that end. It is not sufficient to state only the scientific question.

4.2 **Fit into the programme**

Explicitly describe, in half a page, how the proposal fits into the programme and its research topics as described in this Call for Proposals and the Cooperation Programme Maps4Society (Appendix 1). The Programme Committee will use this section, in particular, for the evaluation of the fit into the programme.

4.3 **Existing infrastructure**

Specify the research institute(s)/department(s)/ research group(s) where the research will physically take place. This information is used to determine whether the research can be realised at the research institute(s) mentioned. The available infrastructure includes furnished laboratory space and necessary equipment.

4.4 **Time plan and division of tasks**

Describe the proposed research planning over the years. For each line of research, indicate the phasing and give a clear description of the step-by-step plan (subsidiary aims and/or ultimate aims) and the intended results. If different lines of research are dependent on each other, indicate this. A schematic representation of the research planning is compulsory. The overall duration of the research plan may not exceed six years.

5. **Utilisation plan**

The utilisation plan must be clear to people without specific prior knowledge. Give sufficient details to enable reviewers and Programme Committee members to assess at what point any potential application outside science may be possible.

5.1 **The problem and the proposed solution**

- Describe the problem that you propose to solve and indicate for whom it is a problem. Indicate the social and economic consequences while the problem remains unresolved.
- Describe how the intended research results contribute towards solving the problem.
- Describe how the intended results will be utilised by the consortium partners, benefit society, and/or lead to new economic activity.
- Indicate how long after the start of the research it will be before the intended research results lead to an entirely new method or new product, process or service. Describe the market for this. This relates to non-scientific applications.
- Open-source software may benefit utilisation in certain cases. The utilisation plan should indicate how the promotion of utilisation can be achieved.
- Indicate whether the research results can be incorporated into standards or norms. If so, describe.
- Indicate how the open-innovation policy will be implemented in the utilisation plan. If in a particular case open innovation is considered to be detrimental to optimum utilisation, motivate why and explain how to deal with the intellectual property.

5.2 **Cooperation within Maps4Society**

Describe the ambitions for cooperating within Maps4Society. Describe how the researchers will interact with those present at Maps4Society Partners, and how you envisage that traineeships of researchers will take place at the premises of Maps4Society Partners. Please indicate how Maps4Society Partners could use and implement the project results and deliverables that emerge from this project.

5.3 **Potential users**

Semi-commercial and commercial research institutes or companies and government other than Maps4Society Partners may be involved. Note that these parties cannot be financed by the programme. Cooperation with such a party can improve the proposal by strengthening the team or enhancing the utilisation perspective.
State the contact details (name of organisation/company and person to contact, address, telephone number, e-mail address) of companies and institutes wishing to participate in the user committee. Indicate the step-by-step plan you intend to use to ensure that the results of the research are effectively applied by users. If third parties are necessary in the course of the project, it is important that they have pledged their cooperation. Also state whether users have already undertaken to accept an invitation to join the user committee or to cooperate in another way. If users have pledged a contribution to the project, give a brief description here.

**Note**

Users of research are defined as natural or legal persons (at national or international level) who are able to apply the results of the research. A distinction is sometimes drawn between direct users of the knowledge generated, usually companies, and end users, who buy the products from those companies. Both have a role to play in the innovation chain and must be referred to in the utilisation plan.

5.4 Past performance
Indicate whether the research team has achieved successful utilisation in the past. Indicate whether scientific results have been commercially utilised. Indicate whether the applications were achieved in an STW context or otherwise.

6. Intellectual property

**Note**

STW should be aware in advance of any obstacles to the free use or exploitation of results. If it emerges that there are any obstacles to the implementation of STW’s IP policy, STW will impose additional conditions. If it emerges during the course of the project that the project leader has omitted to notify such relevant information, STW may suspend the project until the obstacles have been removed. STW may request access to contracts and/or patents in this respect. Contracts must not conflict with STW’s IP policy. If it emerges that STW cannot have free access to the results of the STW research, STW may decide not to award or to discontinue the project.

6.1 Contracts
State whether there are any existing contracts (including material transfer agreements, licences, cooperation agreements) with third parties in relation to the subject of the research.

6.2 Patents
Give a summary of patents held and/or patent applications made by intended parties to the project in the field of the research proposal. Indicate whether the patents and/or patent applications are in the name of the research institute(s) involved or in the name of third parties. If the research institutes involved have relevant patents, indicate whether agreements have been reached in this respect with third parties. Indicate whether there are any patents and/or patent applications which obstruct the utilisation of the intended research results. If such an obstacle exists, explain whether there is still sufficient likelihood of protecting the intended research results by means of a patent. If the patenting of research results is not expedient, explain why not.

7. Positioning of the project proposal
Describe the extent to which the research proposal differs from on-going research initiatives. Consider both the national and the international context. Also state the relevant collaborations with other national or international research groups.

7.1 Uniqueness of the proposed project
Indicate what it is that makes the research proposal original and innovative, not only in a scientific context, but also e.g. with regard to creative consortium, innovative forms of collaboration, new data sources or new business processes;
7.2 Embedding of the proposed project
Provide further information on the embedding of the research plan described here within ongoing initiatives of the research group and/or section.
Indicate whether the research proposal is part of or related to a research programme in which the applicant or applicants’ research institute is participating. If so, indicate the research programme in question.

7.3 Request for support elsewhere
State whether funding has been requested elsewhere for this research proposal or parts thereof. If so, indicate the grant provider(s) in question and the status of that application or those applications at the time of submission to STW.

Note
If, after the project has been approved, it emerges that financial support has been pledged or given by another party without STW’s knowledge, this may lead to an adjustment of the amount of funding or to the withdrawal of funding.

8. Financial planning
Justify the need for both the personnel credits requested and the necessary materials and investments in equipment. Please note that 10% of the project budget should be allocated for knowledge dissemination and utilisation.

Note
STW reimburses the salary costs of temporary personnel, costs of materials (consumables, small instruments and aids), travel expenses and investment costs (expensive equipment) provided these are directly attributable to the STW project.

8.1 Personnel positions
State the necessary temporary personnel positions. Temporary personnel positions can be requested for:
• PhD student
• postdoc (PD)
• PDEng trainee
• other SP (scientific personnel, including additional researcher, holders of a masters degree, medical graduates)
• NSP (non-scientific personnel, including technical assistant)
• Casimir candidate

Notes on temporary personnel positions
Temporary personnel positions can be requested for up to four years in the case of a full-time appointment. State the job group, the length of the appointment, the part-time percentage and the associated amount. For each position, STW uses a predetermined fixed maximum rate per year of appointment (see www.stw.nl). In determining these rates, STW adopts the rates laid down in the most recent ‘akkoord overlaten werkgeverschap NWO/VSNU’, with no supplement for the risk of unemployment. Under this agreement, the personnel rates for the positions are determined annually after agreement on the long-range forecast for personnel rates. The rates which apply at the time of award are maintained for the duration of the STW project. If the personnel rates are changed during the evaluation procedure, STW will apply the new rates at the time of award. This does not affect the level of the compulsory contribution from users.

Personnel appointed to additional personnel positions during the course of the project (e.g. in the event of continuation or extension) are subject to the rates which apply at that time.

For postdoc, scientific personnel and non-scientific personnel positions, STW does not accept liability under the Dutch Unemployment Insurance Act if the term of appointment is less than 12 months and/or the candidate has more than 1 year’s relevant work experience in a previous, similar appointment.
The research institute appoints the personnel and bears the customary responsibilities of an employer.

**Notes on permanent staff**

The salary or allowance paid to the applicant/co-applicant and the salary or allowance paid to others person with a permanent appointment or other permanent association with the institute where the research is to take place are not eligible for reimbursement. Exceptions to this are the temporary appointment to a project of 1) a technical assistant (NSP) or 2) a scientist with an ‘appointment on a project basis’. An NSP with an existing employment contract at the research institute can temporarily be appointed against the standard NSP rates at the expense of an STW project, if this NSP has a specific special expertise that is necessary for realising the research proposed. A scientist with an ‘appointment on a project basis’ at the research institute can temporarily be appointed against the standard scientific personnel rates at the expense of an STW project. The scientist concerned may not be registered as an applicant or co-applicant at STW/NWO. STW accepts no liability under the Dutch Unemployment Insurance Act in this case.

**Notes on secondment**

Temporary researchers are appointed to the research institute where the research is to be realised. Because STW imposes the condition that the majority of knowledge development must take place at the research institute, the secondment of university researchers to a company or other research institute is permitted only for a limited period, i.e. up to 50% of the extent of the appointment. This requires written permission from STW in advance. In view of STW’s IP policy, a secondment agreement shall be concluded. Where the need arises, an applicant can submit a reasoned request to the STW office to grant leniency with regard to the 50% limit. Criteria for this are 1) there must be a need to use the infrastructure of the external party, 2) there must be a sufficient academic environment present at the external party for interaction with and supervision of the researcher and 3) the project leader and/or supervisor of the researcher must also be present at the external location concerned for some of their time.

**Notes on PDEng trainee**

A temporary personnel position can be requested for a PDEng trainee (certified training Professional Doctorate in Engineering). This position should be applied for within a larger research context (1 or more other scientific personnel positions). The PDEng trainee is employed by the institute submitting the application and for a fixed period of time can perform certain tasks within the research project at a company (on a secondment basis). The PDEng position is subject to the following conditions:

- In the research plan and the utilisation section the embedding of the PDEng position should be described and/or the underlying Technological Designer Programme.
- Assuming a full-time appointment, a maximum duration of 2 years applies.
- The personnel rate for a PhD (first 24 months) applies to a PDEng position. The personnel costs are included in the personnel credit.
- For the PDEng position, material and/or travel credit can be applied for as part of the standard credit.
- The secondment to the company concerned is for a maximum of 50% of the duration of the appointment.
- The contribution from the company concerned to the PDEng position is k€ 50 (assuming 1 fte for 24 months). This contribution should be entered in the project budget as in cash cofinancing to be settled with STW.
- If the project is funded then a secondment agreement must be signed with the company concerned, in which the ownership of the results of the research that is carried out at the company, remains with the institute submitting the application and STW in accordance with the IP policy of STW.
- STW can make agreements with the company concerned about acquiring an option right to results from the research. In the event that there are several users who also make substantial contributions to the research then STW will discuss with the company concerned and these other users what the possibilities are for a shared option or an option for part of the results.

**Notes on Casimir candidate**
One SP position can be filled by an academically trained R&D worker from a Dutch company or a company with a Dutch branch where R&D activities are carried out (100% private sector). The following conditions apply:

- Based on a full-time secondment, a 2-year time limit applies. The limit for PhD students is 3 years. Part-time secondment (at least 50%) is possible.
- The proposed candidate should have been working for the above-mentioned private sector employer for at least 1 year (tenured or temporary appointment).
- The application should contain a brief description of the proposed candidate’s work experience and expertise. On the basis of the necessary work experience of the relevant candidate, PhD work should be able to be completed within 3 man-years.
- In addition to the Casimir position, at least 1 other SP position must be requested with at least the same extent of appointment.
- The Casimir candidate should have access to the university infrastructure and the Casimir position should be an integral and necessary part of the proposed university research and serves the realisation of the project aims and utilisation. This should be described in the research plan.
- In relation to personnel costs for the Casimir position, the university can declare to STW the secondment costs actually paid to the company, up to the personnel rate for a postdoc position which applies for the relevant extent of appointment. These costs should be charged to the material credit for the project. STW accepts no liability under the Dutch Unemployment Insurance Act for the Casimir candidate.
- Material and/or travel credit can be requested for the Casimir candidate as part of the regular credit to be requested.
- If the project is approved, a secondment agreement must be concluded in view of STW’s IP policy.

8.2 Consumables

In accordance with the standards that apply within your research institute, specify the costs of consumables, small instruments and aids, and domestic travel expenses. The amounts stated in the budget here are exclusive of Dutch VAT.

Notes on Material credit

Costs which CAN be charged to material credit

- which no longer have an economic value after use. This concerns consumables, small instruments and aids.
- Specified compound items. Fixed instalments or rates in particular (e.g. bench fees and fees for standard analyses) must be substantiated. Within the rates accepted by STW, only the consumables costs can be charged to STW.
- Personnel costs for Casimir position (see point 8.1 for notes).
- Costs of domestic travel.
- Costs of project-specific courses for STW researchers which are necessary for the conduct of the research.
- Posters for disseminating knowledge at conferences and symposia.
- Pre-clinical trials. A condition in this respect is that the project workers themselves are responsible for the majority of the work (e.g. sampling, analyses).

Costs which CANNOT be charged to material credit

- ‘Miscellaneous’ or ‘unforeseen’ items, unspecified bench fees.
- Patent costs. Where appropriate, STW will consider the extent to which it will bear such costs.
- Costs of publications or costs of purchasing books and/or journals.
- Costs of publications or books.
- Costs of printing a thesis. A separate reimbursement scheme exists for this (see www.stw.nl).
- Costs of general courses which form part of researchers’ generic education and the generic education of a PhD student (e.g. English, presentation skills, literature searching, laboratory animal science, use of isotopes).
- Costs of desktop computer, laptops, notebooks or similar for administrative purposes (text and data processing) and costs for computer use.
- Generic software. STW assumes that generic software is available via campus licences.
• Costs associated with the use of computing facilities at SURFsara. If necessary, these costs can be requested from Netherlands eScience Center NLeSC in Amsterdam.
• Costs of using existing infrastructure (depreciation charges), salary costs of permanent personnel, accommodation costs, overheads and administrative and technical support, where these are part of the research institute's customary package of facilities.
• Costs (excluding material costs) of university facilities (e.g. glasshouse space, laboratory animal facilities, specialist research facilities).
• Clinical trials.

8.3 Travel abroad
State the costs of foreign travel. The foreign travel credit is intended to cover costs associated with participation in conferences and symposia in other countries. Extended visits may also be applied for.

Notes on short travel abroad
For temporary project workers, STW applies a maximum standard amount (2000 euro/year/fte) which can be claimed as short travel abroad. Foreign travel costs of applicants and co-applicants can also be claimed up to the maximum standard amounts, provided those costs are directly related to the conduct of the proposed research and a convincing argument is put forward in this respect. In principle, travel costs cannot be claimed for non-scientific personnel (NSP). If the sum claimed exceeds the maximum standard amount per year it cannot be accepted unless clear arguments are put forward on which STW and the referees can base their verdict.

Notes on exchange visits
Temporarily appointed project workers may carry out research at a foreign research institute for a limited period (up to six months) in the context of an STW project. A foreign researcher may also be temporarily appointed to an STW project; he or she visits the research institute and participates actively in the conduct of the project.
Conditions relating to foreign travel of up to six months' duration:
• STW must be aware of this type of foreign travel when considering the application, and it must form part of the research planning so that referees can include it in their review.
• A condition for an exchange is that the knowledge acquired as a result of the visit is not present, or is not sufficiently available, at the research institute where the research is being conducted. In the event of acceptance, STW verifies whether this actually results in a strengthening of the knowledge base for the project.
• STW reimburses the travel expenses, research costs and a standard amount for accommodation expenses. No (additional) salary costs are reimbursed. For the list of standard amounts for accommodation costs, see www.stw.nl.
• Any intellectual property matters are covered by a separate agreement (waiver/confidentiality) before travel takes place.

8.4 Investments
Specify the investment costs and give a detailed summary of the equipment required. Investments are defined as the use of durable scientific equipment in respect of which economic value is depreciated. Investment costs are entered in the budget exclusive of Dutch VAT.

Notes on investments
• STW assumes that the research institute applies a tendering procedure for the purchase of durable equipment and takes account of government procurement guidelines.
• If second-hand equipment is purchased, the original bill must be submitted.
• STW may be asked to co-fund an item of equipment in proportion to its use. This should be put down in writing after the award.
• Computers belonging to scientific equipment and specific software used exclusively for the project may be claimed as investment.
• Computing capacity which demonstrably exceeds the normal capacity required for the research in question can be claimed as investment.
• The equipment is and remains the property of STW. After the end of the project the equipment remains at the research institute. Formal transfer of ownership of the equipment without further payment is possible. A time limit of five years after purchase is applied in this respect.
• The research institute is responsible for the connection, operating costs and maintenance of the equipment purchased (service charges and repairs).
• STW distinguishes between operation of existing facilities within the research institute and investment in new facilities specifically for the purposes of an STW project. In the case of operating costs and small-scale investments, STW pays only the costs of consumables. These costs can be claimed as material credit. STW will however pay the full cost of capital goods supplied by internal services in those cases where a disproportionate burden is placed on the service in question, provided that a convincing argument is put forward in this respect. STW will be the judge of this.
• If, in the course of time, it emerges that the costs of the investments described in the proposal are lower than estimated, the remaining funds will revert to STW.
• STW may refuse expenditure not estimated in advance.

8.5 Contribution from users
In-kind co-funding by third parties is compulsory. The co-funding should comprise a significant contribution to the project. State the personnel and/or material contribution (co-funding) made available by users for the purposes of the project. Information on the calculation of co-funding can be found in Appendix 2.

Notes on Criteria relating to in-kind co-funding

• STW accepts personnel input and material contributions as co-funding on the condition that these are capitalised and that they form an integral part of the project. This should be made clear in the description and planning/phasing of the research.
• STW assumes that providers of co-funding have an interest as users and therefore as appliers of the research results outside science. Co-funders always participate in the user committee.
• Government agencies can play various roles in STW projects, namely: (1) as a research partner (without entitlement to STW funding), (2) as a subcontractor of a specific assignment (at market rate) or (3) as a user. Government agencies may act as users under the same conditions as private users.
• The co-funding to be provided by users must be confirmed in a letter of support. These letters must explicitly state: 1) the importance of the research proposal for the organisation, 2) the importance of the utilisation plan for the organisation’s operations and 3) the specified capitalised material and/or personnel contribution(s). See also the note under 8.7.

Part of the research may be conducted by third parties. A condition is that the expertise provided in the form of man-hours is not already available at the research institute(s) and is used specifically for the STW project. For personnel support by third parties, STW applies fixed rates in order to capitalise the number of man-hours used (up to 1250 direct hours/year/fte) for a senior or junior researcher. For the current rates, see www.stw.nl.
• For pledges of material resources, charge the cost price. Commercial rates are not accepted. For pledges of equipment, take previous depreciation and intensity of use into account.
• Pledges in the form of supplies of services are possible only if the service can be itemised as an identifiable new endeavour. The service should not already be available at the research institute(s) realising the research.

Applicants may wish to claim services already supplied (such as a database, software or plant lines) as in-kind co-funding. Acceptance is not automatic in such cases. Contact STW about this. Further consultations will take place to decide whether a specific value can be determined for this supply of services.

NOT permissible as co-funding
• STW guards against the improper mixing of funding sources: co-funding can never come from direct or indirect (NWO, KNAW) government funding. As a result, co-funding can also never come from the research institute of the (co-) applicant(s) or from institutes which are themselves eligible to apply to STW.
• Discounts on (commercial) rates for materials, equipment and/or services, for example.
• Costs relating to overheads, supervision, consultancy and/or participation in the user committee.
• Costs of services that are conditional. No conditions may be imposed on the provision of co-funding. Nor may the provision of co-funding be contingent upon reaching a certain stage in the research plan (e.g. go/no-go moment).
• Costs which are not paid by STW (e.g. clinical trials, costs relating to the exploitation of the research results, service costs equipment).
• Costs of equipment if one of the (main) aims of the research proposal is to improve this equipment or to create added value for it.

8.6 Cost breakdown
Complete the Financial Planning (FP) form available at www.stw.nl, stating any capitalised contribution(s). Make sure that the capitalised contributions in the budget and the letters of support agree. If a project is to be realised at more than one research institute, give a breakdown of the budget for each research institute on page 2 of the FP. Notes for the completion of the form can be found in Appendix 2.
The form should be submitted together with the factsheet, as a separate appendix in PDF format.

Notes
Each research institute concludes a funding agreement with STW for its share of the budget. It is not possible to break down the budget for each research group within a single research institute in view of the administrative burden on STW.

8.7 Letters of support
As confirmation of the co-funding to be provided, attach the letters of support (in English) to the factsheet as separate appendices in PDF format.

Notes
A letter of support is obligatory if co-funding is provided by the users. STW advises applicants to ensure that the users pay particular attention to endorsing the importance of the utilisation plan for their operations. These letters must explicitly state: 1) the importance of the research proposal for the organisation, 2) the importance of the utilisation plan for the organisation’s operations and 3) the specified capitalised material and/or personnel contribution(s).
The amounts stated in the letters of support must correspond with the amounts stated in the budget presented. The letters of support must be written in English. Letters of support are addressed to the project leader and not to STW. The letters must be signed by an authorised signatory and be printed on the stationery of the co-funder. A copy or scan of the letter will suffice for the submission of a research proposal. STW will not approach persons or organisations who have signed letters of support to act as referees (code of conduct on conflicts of interest).
Letters of support are unconditional and do not contain any opt-out clauses.
After the research proposal has been awarded funding STW will request a confirmation of the co-funding (“confirmation obligation third parties”) and in relevant cases will record any further arrangements in an agreement.

9. References
9.1 Selection of key publications research group
State the key publications of the research group(s) in relation to the proposal. Also state any relevant published patents.

9.2 List of publications cited
State the publications cited. Identify those in which members of the research group(s) submitting the application are involved, by the use of a bold font.
10. Abbreviations and acronyms

It is important that both experts and jury members are able to read the proposal easily. Abbreviations and acronyms should therefore be explained at least once. This can be done in the text itself or in a separate list. Keep the use of abbreviations in summaries to a minimum.

Declaration and signing by the applicant
After completing the information requested (see Appendix 3) on the form ‘Declaration and signing by the applicant’, available at www.stw.nl, please sign the application as truthfully completed, on your own behalf and on that of the co-applicant(s). This form is a compulsory element of the application and should be submitted with the factsheet as a separate appendix in PDF format.

Finally
In the event of uncertainties or costs to be claimed which are not mentioned in this brochure, STW recommends that you contact the STW office before submitting the application.
Appendix 1: Maps4Society Programme Plan
solutions for user-oriented and smart geo-information infrastructure

1. Introduction and industrial relevance

Cooperation
The Dutch technology foundation (STW) initiated the STW Cooperation Programme to stimulate effective cooperation between academics and societal partners. In the context of this programme the Rijkswaterstaat, the Kadaster, the Netherlands Space Office (NSO) and the Netherlands Geodetic Commission (NCG) together with universities and companies, have developed the Maps4Society (M4S) research proposal. The core of this proposal is user-oriented geo-information innovation and research on smart geo-information infrastructures. A key utilisation area for this programme is object life cycle management.

The cooperation is supported and initiated by the ICT Innovation Platform Geo (IIPGeo) and the NCG, and is developed in close cooperation with the geo-information professional domain (amongst other things via a workshop in September 2012 and a special utilisation workshop for companies in March 2013; reports on www.maps4science.nl).

The M4S programme fits in well with the national policy on geo-information (GIDEON), of which a proposal for the second phase is currently being formulated. This policy stimulates a close cooperation between the government, companies and knowledge institutions. The M4S programme will be connected with the ICT Breakthrough projects “Open (geo)data as a component for growth and innovation” (including ODIN), “Digivaardige Beroepsbevolking” [European Competence Framework] and “the Digital Delta”.

M4S aligns with the Lobby Agenda 2013-2014 for GeoBusiness Nederland (GBN), spearheaded by open innovation and the role of geo-information in the ‘topsectors’.

M4S’s goal is to innovate components of the existing national geo-information infrastructure, such as the “Nationaal Modellen en Data Centrum” (NMDC), the “Publieke Dienstverlening op de Kaart (PDOK)”, and the national Satellite Data Portal. This will be done in alignment with international developments, such as the EU FP7 project European Location Framework (ELF), which supports the usability of the European INSPIRE Directive and the EU FP7 project Virtual Construction for Roads (V-Con), which focuses on standardisation and implementation of Building Information Modelling (BIM) technology. This cooperation programme addresses several themes of the grand challenges of Europe (identified in Horizon 2020).

Relevance for top tier sectors (topsectoren)
The M4S programme will contribute to various ambitions, themes and programmes of the Dutch ‘topsectors’.

Roadmap ICT - As indicated in the ‘Advice of Topteam High Tech Systems and Materials’ (June 2011), ICT is an enabler for all ‘topsectors’. Maps4Society fits well in the ICT Roadmap, and is especially connected to the topics “ICT for a connected world” and “Data, data, data”. Big data is an important theme addressed by the Roadmap ICT.

High Tech Systems and Materials - The ‘innovation contract HTSM 2012’ states that a structural increase of HTSM-relevant university research will be necessary in order to fulfil the ambitions conceived for this ‘topsector’. The research proposed by M4S will contribute to:

- Roadmap Automotive: Smart Mobility requires that huge amounts of data from various sources with different accuracy and reliability need to be combined. This will be addressed by the M4S research areas ‘Dynamic data and harmonisation’ and ‘handling Big Data’.
- Roadmap healthcare systems require extensive data sharing, interoperability and fast extraction of the right information from very large databases of different origin.
- Roadmap embedded systems: problems (research areas) related to distributed sensor systems include distributed processing; scalability, uncertainty, dynamics and processing of distributed, unreliable data.
- Roadmap Space: downstream use of geo-information from space technology.

Logistics – for this ‘topsector’ it’s of major importance that the flow of data correct. It is difficult to achieve this because of the many data sources from various owners, the unpredictability of the data and the increase in data which is individualised. In order to optimise scheduling of (various forms of) transport, advanced research is needed. This will partially be provided by M4S.
Topsector Energy  - In order for the Smart Energy Grid to work in real life, the stochastic aspects in its management will have to be studied. The statistical techniques evolved for working with geo-oriented data and further developed in the research area ‘data quality assessment’ of M4S, can be helpful.

Creative Industries
- ICT and Media require new ways to search and access open and closed data.
- Architecture and the built environment has an interest in open data and standardisation.
- Cultural heritage needs standardisation of metadata, data mining, semantic interoperability and visualisation of large data sets.

Water
- Delta technology: Digital Delta; ‘Duurzame Deltasteden’ [sustainable Delta cities – Mapping & Monitoring]
- Water technology: Water & ICT
- Maritime: smart ships and smart ports

In particular for the Digital Delta (project within Topsector Water & Breakthrough project on ICT), we see the following opportunities:
1) Big Data en Smart analytics: better sharing of information in the Dutch water sector opens the opportunity for new analyse methods and techniques
2) Research of the interoperability between water-ICT applications/platforms and smart Geo-information infrastructures.

Background
Many processes in our living environment have a location-specific impact. Examples of this are traffic congestion, the spread of infectious diseases, food production, housing transactions and floods. Spatial information is a key asset for the monitoring and management of these processes. More often this information is organised in and provided by geo-information infrastructures (GII). Collaboration between GI providers and users is crucial for the development of a healthy and innovative geo-information infrastructure. Rijkswaterstaat, the Kadaster and the NSO are key providers of Dutch geo-information. They play a central role in the development of a national GII.

Rijkswaterstaat is the executive arm of the Dutch Ministry of Infrastructure and the Environment (I&M). On behalf of the Minister and State Secretary, it is responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands such as the national waterways and roads infrastructure. It facilitates the smooth and safe flow of traffic, keeps the national waterway system safe, clean and user-friendly, and protects the country against floods. Geo-information plays a crucial role in the various activities. The Netherlands’ Cadastre, Land Registry and Mapping Agency, in short Kadaster, is an independent governing body, under the political responsibility of the Minister of I&M. The Kadaster collects and registers administrative and spatial data of property and the rights involved. This also includes ships, aircraft and telecommunication networks. The Kadaster also maintains the Key Register Cadastre and Topography and is a node for e-government. Rijkswaterstaat and the Kadaster together, are responsible for the maintenance of the national reference coordinate system: Rijkswaterstaat for the vertical reference via NAP (Amsterdam Ordnance Datum), the Kadaster for the horizontal reference via the RD system (national triangulation system).

The NSO was established by the Dutch government in October 2009, to develop the Netherlands’ space programme and to activate that programme. Since March 2012, the NSO has been operating the Satellite Data Portal, which provides Dutch users with free access to current, raw satellite data from the Netherlands.

The NCG coordinates and initiates fundamental and strategic research in geodesy and geo-information in the Netherlands. The NCG advises on general policy issues related to geodesy and geo-information, stimulates the spread of knowledge in these fields and coordinates the geodetic infrastructure of the Netherlands.

The Netherlands is historically one of the world’s best-measured countries. It continues this tradition today with unparalleled new datasets, such as the nationwide large-scale topographic map, the unique digital height map (nationwide coverage; ten very accurate 3-D points for every square metre of the Netherlands), and a range of public and private collections of environmental and socio-economic geo-datasets. The focus of this programme is to create societal and economic value from the geo-data through innovative research.

Industrial relevance and participation
In the last few decades a vibrant geo-information industry has materialised in the Netherlands. Most GI jobs are now in the industrial sector which has organised itself under the umbrella of GeoBusiness Nederland. It is also a highly innovative sector with about 7% of its turnover invested in R&D (ref. Marktmonitor GeoBusiness)
Nederland). Continuous innovation is therefore essential to maintain the position of the Dutch GI industry as a world leader in geo-information knowledge, high quality geo-data and innovative applications. During the past decade a large part of the data has become available as open data in the Netherlands (and it is expected that this will increase further). This has offered and continues to offer ample opportunities for the private sector, in sound cooperation with government and universities, to develop value-adding products and applications. The GI industry, through its trade organisation GeoBusiness Nederland (GBN), has expressed its support for the Maps4Society programme. Of particular relevance is the ‘innovatiecommissie GBN’ (the innovation committee of the GI industry). In this committee Maps4Science is labelled as the main anchor programme for future innovation and collaboration with the government and universities/knowledge institutions. It is envisaged that GBN will be a permanent member of the M4S advisory board (see section 8).

Synergy will be established with the participation of GBN in the High Level Group and steering committee of the ICT Breakthrough project ODIN. Active participation of the GI industry is envisaged in various phases of the programme:

1) Initiation phase: during the formulation of the programme GBN and associated companies were actively involved via workshops.
2) Execution phase: companies participate in the various Maps4Society research projects. Within each project, participation by a company is required. Its contribution can be in cash or in kind. Match-making workshop(s) will be organised.
3) Utilisation phase: When new and innovative methods, techniques and applications are developed within this programme, it is the role of companies to utilise them in order to create value adding products.

The utilisation workshop had a positive vibe and showed serious interest in participation by companies in Maps4Society projects, as is illustrated in the letters of support (list appended).

![Figure 1. Utilisation workshop 15 March 2013, GBN Woerden](image)

2. Focus and applications

**Focus**

We are witnessing an ongoing transition of the geo-information role from the old “map paradigm” (describing a spatial situation) towards continuous identification, monitoring and control of spatial processes at multiple scales. This transition requires a change in our geo-information production processes: from a traditional, linear process to a cyclic and more integrated approach (see Figure 2).
In the past, the geo-information production chain was a linear process in which geodata was collected, and subsequently stored, analysed and used. The use was mainly by geo-information specialists. During the last decade, the geo-information process has become more cyclic, with more user influence and a wider spectrum of applications. At the same time, geo-information users are becoming data producers, for example, by updating the traffic information for TomTom or contributing to the Open Street Map (OSM).

In data collection, there is a growing importance of (geo)sensors. In the future, we expect the development of an integrated geo-information production chain, which displays a smart, data-intensive and dynamic geo-information infrastructure with intensive interaction with users.

Applications

Results of the proposed M4S programme will be applied to the object life cycle management of buildings and infrastructure constructions. Research will also stimulate the further development of PDOK, NMDC, and the Satellite Data Portal. It is envisaged that research will be applied in a number of cases which are highly user-oriented, as defined by the M4S consortium partners:

1. **Object life cycle management for building and infrastructure.** Here the focus lies on the framework for interoperability of ICT systems in the supply chain (eBSN). Instead of separate solutions for the different phases in the building process, an object-oriented information architecture is urgently required, in which objects can be represented throughout their lifecycle in combination with GI and spatial information. **Issues are:** (1) harmonising of different data semantics between objects, phases, and other (geo-)information sources (topography, cadastre), and (2) managing and disseminating data between stakeholders.

2. **Water management.** This provides a link with the “Digital Delta” and the ‘topsector’ for water. This enables the urgently needed exchange of knowledge between the ICT-driven developments and the GI-driven developments. **Issues are:** (1) the combination of different types of data like large-scale topographic base maps (3-D), high-density point cloud data (laser scanning), satellite data, and real-time sensor data for water management and, (2) the combination of data with spatial process models for analyses and prediction.

3. **Deformation and change monitoring.** Deformation is an issue of continuous concern in the Netherlands. Besides deformations of the Earth’s surface itself, deformations of buildings and physical infrastructure like dykes, roads, and railways (continuously) have to be monitored. Even small deformations can, in the long term, have a huge impact. If deformations of physical infrastructures are not detected in time this can lead to...
high maintenance costs. **Issues are:** (1) the processing of raw (radar) satellite data to derive deformation information, (2) mobile mapping techniques (sensors on vehicles, trains and ships) and unmanned aircraft systems (UAS).

4. **Crisis management.** Crisis management is a complicated process that involves various phases (mitigation, response, recovery, etc.), and many different parties (various kinds of rescue workers, authorities at different levels, civil protection, the Red Cross, military, etc.).

**Issues are:** (1) net-centric activities i.e. relevant information (including smartphone crowd-sourcing) should be processed and be made readily available in real-time at the right level to all the participants involved in the management of emergency services, (2) 3-D modelling, positioning and navigation with specific attention to dynamic environment and indoor/outdoor integration.

5. **Smart Cities/Human environment.** The Smart Cities concept endeavours to find smart solutions to complicated urban problems in areas such as energy, transport, governance, societal change, pollution, management of high traffic densities and the movement of masses. In monitoring our human environment, both the physical and social aspects are among the key activities for Smart City decision-making.

**Issues are:** (1) Citizen involvement in the development of new urban planning policies being relevant for a transition to co-creation mechanisms, (2) GII technologies (including positioning, sensor-web) to instrument Smart Cities with their ‘nervous system’.

3. **Geo-information research areas**

In support of the abovementioned applications, a number of geo-information research areas have been identified. The proposed areas are based on the formulated research agendas of the NCG-KNAW, and a Map4Society workshop amongst the participants.

A. **Dynamic data and harmonisation.** The geo-information domain is shifting from static 2-D geo-data towards dynamic 3-D data collection, processing, integration and use. In many applications, data from heterogeneous sources (different domain models and terminology used) must be combined. From a governance point of view we recognise spatial processes at different aggregation levels that require management at different administrative levels, this requires consistency of spatial-temporal data at different scale levels. This shift requires a re-design of our geo-information infrastructure and the associated data entry and use procedures. Information models (with explicit meaning based on semantic technology) should be formalised based on agreed principles for object IDs, object life cycle, multi-source object referencing, time, scale, etc.

**Research questions:** (1) How does one realise concepts such as multi-scale and vario-scale geo-information? (2) How does one provide data harmonisation services in a dynamic GII setting?

B. **Handling of Big Data.** Within the domain of geo-information very large spatial-temporal datasets are produced: satellite data (see D), massive crowd-sourced data (see E), massive point clouds (such as LiDAR or multibeam echosounders). These cover aspects such as atmosphere (weather, climate and air quality), water (water levels/quantity, water quality and storms), subsurface (geology, groundwater flow quantity and quality), and human behaviour (traffic flow and population health). In the handling of these very large datasets it has become a challenge to make them timeously available and useful for applications.

**Research questions:** (1) How does one manage the continuous updates of large dynamic datasets (permanent data flows)? (2) What is the best way to manage these and to process large geo-datasets efficiently and effectively, and how can information be retrieved and visualised from these datasets?

C. **Data quality assessment.** An important aspect of working with geographic datasets and particularly working with reference datasets, is the (perceived) quality of the data and the means to assess its quality. In the last decade a transition has taken place from data-oriented quality towards user-oriented quality. More and more data is integrated by using geo-information infrastructures. The quality of the integrated products (both the information and the results of process simulation models) is becoming an issue of concern.

**Research questions:** (1) How can the quality of spatial data be assessed and presented in a user-oriented context? (2) How can the quality of an integrated geo-information product be assessed?

D. **Satellites-as-a-service.** The increased use and importance of satellite data has led to more time-driven user requirements. Instead of ordering readily available data products from a satellite operator and applying these products some days to weeks after the actual acquisition, users have a need for real-time and on-demand programming, acquisition and delivery. Solutions are expected to be based on the principle ‘satellites-as-a-service’. **Research questions:** (1) How does one realise new concepts and techniques for “satellites-as-a-service”? (2) How can companies and citizens benefit from satellites-as-a-service applications?
E. **Volunteered geographic information.** VGI (including trajectory data) has obvious potential for the collection of geo-information but also comes with yet unresolved problems. This type of data is prone to errors and it’s difficult to assess the reliability and trustworthiness of the derived results. The role of VGI can be manifold: (a) it can be used as a ground truth for verification purposes, (b) it can also be used as a raw data source for spatial phenomena for which no alternative survey methods currently exist, and (c) for charting the stakes/desires of various stakeholders. **Research questions:** (1) How can VGI be used in combination with “professionally acquired” data? (2) What quality of VGI is required for specific application areas?

F. **Geo-information infrastructure governance.** Besides technical facilities, legal, organizational, financial, strategic and data policy issues play a key role in the actual access and use possibilities of data. A well-functioning and trustworthy infrastructure can only be achieved if clear policies are formulated and implemented. Data policies play a key role and use restrictions (if any) must be respected and/or enforced in the geo-information infrastructure. For enforcing certain use restriction technical as well as legal solutions can be used. It is the ambition of the Maps4Society consortium to formulate, implement and evaluate a data policy (and strategy) and an organizational framework that on the one hand respects ownership, responsibilities and privacy aspects of the data and at the other hand stimulates innovation and creative use and cooperation. The geo-information infrastructure is not a fixed reality, but the outcome of a process in which different (mutually dependent) stakeholders, namely public, semi-public and private actors, interact, share information and negotiate with each other in the policy arena to optimize the potential of geo-data. One should for example consider the existing information monopolies. For that reason the geo-information infrastructure is not primary a technical challenge (‘technology driven’ effort), but a political and strategic issue as well. For that reason the intended and unintended effects of the geo-information infrastructure should get attention too. The governance approach of the infrastructure has also implications for steering relations (based on mutual trust, horizontal interactions, co-creation and creating common images about the perceived reality). Finally, the geo-information infrastructure is becoming more ‘bi-directional’ (e.g. crowd sourcing’) and can have societal implications as well, for example in terms of involvement of citizens and users of geo-data. It is very important that attention should be given to the needs, rights and responsibilities of citizens involved in the creation and use of geo-data. **Research questions:** (1) Which organizational and governance structures need to be implemented for a sound and innovative geo-information infrastructure? (2) How can effective safeguards be put in place to deal with the needs, (privacy) rights and responsibilities of citizens involved in the creation and use of geo-data in an integrated geo-information infrastructure?

4. Link between geo-information research areas and applications

Within the cooperation programme applications are linked with the geo-information research areas.

<table>
<thead>
<tr>
<th>Research Areas</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic data and harmonisation</td>
<td>Object life cycle management</td>
</tr>
<tr>
<td></td>
<td>Water management</td>
</tr>
<tr>
<td>Managing Big Data</td>
<td>Deformation monitoring</td>
</tr>
<tr>
<td>Data quality assessment</td>
<td>Crisis management</td>
</tr>
<tr>
<td>Satellites-as-a-service</td>
<td>Smart cities / Human environment</td>
</tr>
<tr>
<td>Volunteered geographic information</td>
<td></td>
</tr>
<tr>
<td>Geo-information infrastructure governance</td>
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</tbody>
</table>
Within this cooperation programme research project proposals will be offered that combine a geo-information research area and one or more application domains (addressing at least one and preferably more cells in table 1).

In the utilisation workshop it seemed that 3 or more cross-overs in the matrix are relevant for almost every company, depending on the focus of the company (data acquisition, geo-ICT, services, etc.), so the matrix suits the business needs for innovation very well.

5. Research project proposals
The following criteria are defined for project proposals within the Maps4Society programme:
- The project proposals should address at least one of the application areas as mentioned in section 2 by advancing one or more of the major research areas as mentioned in section 3.
- Projects should be submitted by at least two research groups from different universities or scientific disciplines.
- Projects should be multiparty projects, including science, governance and companies (the government and the business community can participate "in kind").
- Projects should contribute significantly towards the development of an integrated geo-information process chain.

Exclusions from this programme are project proposals covering:
- Research and development on the basis of existing patents that are not owned by the university applicants themselves.
- Research topics on which there is a conflict of interest with one of the participants.

6. Unique character of the programme

Figure 3. M4S Consortium (also including NCG) and M4S User Group in the context of the (Inter)National Geo-Information Infrastructure.

- The programme is unique in a sense that the Rijkswaterstaat, Kadaster, NSO, NCG, companies and universities work closely together on common scientific, economic, and societal issues.
- It contributes significantly towards the improvement of the existing National Geo-Information Infrastructure via various innovations, and the realisation of (one of) the most advanced geo-information infrastructures in the world. This infrastructure will stimulate innovation spill-overs between sectors.
• It strengthens the Dutch scientific community in its role of geo-information infrastructure management and its deployment for actual societal themes.
• It contributes towards maintaining the competitive edge and is advantageous for GeoBusiness Nederland (GBN) within the international geo-business arena.

7. Duration, budget and utilisation


The total budget is €3 million, of which 50% is funded by STW and 50% by the Maps4Society partners. The budget is shared by the partners in the Maps4Society consortium as follows: Rijkswaterstaat 88.5%, Kadaster 5%, NSO 5%, NCG 1.5%.

In addition, there will be a substantial in-kind participation from the consortium partners and other users involved in the projects (see Figure 2). Various parties have already confirmed their intention towards in-kind participation in projects, e.g. Esri, Fugro, Neo, Geonovum, and NMDC.

Utilisation programme

To stimulate the development of value-adding products and applications, a knowledge and utilisation programme will be set up. Knowledge, development and application will be brought together in meet-and-match sessions. Consequently R&D spending will be converted into the commercialisation of services and products. To create a learning community for knowledge dissemination and for the anchoring of results, a Maps4Society User Group will be formed, with a clear link to existing user panels and platforms like IIPGeo, IIPBouw and IIP Sensor networks. Utilisation and co-creation is stimulated by this M4S User Group. If needed, the individual projects will be supported by an individual user-reflection group (see Figure 2). A minimum budget of 10% will be apportioned to the utilisation programme. Besides that, as a responsibility of the project, 10% of the project budget must be allocated for knowledge dissemination and utilisation.

8. Programme Committee and Advisory Board

Rijkswaterstaat acts as leading party for the Maps4Society consortium. The programme will be managed by a programme committee (PC) consisting of 10 people, comprising five representatives from practice, nominated by the Maps4Society consortium (M4S members) and five scientists representing STW.

The PC Members representing the Maps4Society consortium are:
• Kyra van Onselen PhD, Rijkswaterstaat – GI:, Sr. Advisor
• Andreas Heutink MSc, Rijkswaterstaat – Building Information Model (BIM):, Sr. Advisor on innovation & development
• Aart-Jan Klijnjan, Kadaster , Head of Policy and Development
• Jasper van Loon PhD, NSO Advisor science and applications
• Prof. Martien Molenaar, NCG Chairman

The five scientific PC Members representing STW are:
• Prof. Alan Hanjalic, TU Delft (hardware/ICT)
• Prof. Kees Stuurman, University of Tilburg (legal)
• Hylke van Dijk, NHL (serious gaming)
• Rene van Schaik, NLeSC (Netherlands eScience Center) (Big Data, visualisation)
• Prof. Yola Georgiadou, UT, ITC (social sciences).

Kyra van Onselen will chair the PC.

The members of the Programme Committee (PC) have the expertise to assess the proposals. The PC comprises people from the fields of both geo-information and ICT; participation from the ICT field is provided by the STW scientific expert candidates. PC members may invite advisory members to the PC meetings, although they will not have any voting rights.

A permanent Advisory Board (AB) plays a key role with regard to the utilisation and may also be involved in reviewing the proposals. Candidates will be sought from organizations such as:
• GeoBusiness Nederland (GBN)
• Geonovum
• Nationaal Modellen en Data Centrum (NMDC))
• Centre for Public Innovation (CPI)
• Digital Delta (top tier sector Water)
• ICT Roadmap (top tier sector HTSM).

The PC is responsible for the overall strategy and management of the programme. The PC meetings will be organised/planned twice a year unless the PC decides otherwise. All members of the PC are subjected to confidentiality restrictions to protect any ideas set down in the university project proposals.

STW shall appoint a Programme Manager for organisational assistance to the PC. This Programme Manager has no voting rights in the PC and will not be remunerated from the project funds. Coordination of the utilisation programme will be provided by IIPGeo in cooperation with others, if necessary.

9. Special conditions for applicants

Universities and institutions that qualify, may apply on the basis of the STW criteria.

Programme Plan Appendix 1. List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BIR</td>
<td>Bouw Informatie Raad [Building Information Council]</td>
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<tr>
<td>CPI</td>
<td>Centre for Public Innovation</td>
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<tr>
<td>ELF</td>
<td>European Location Framework</td>
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<tr>
<td>EU FP7</td>
<td>European Framework Programme 7</td>
</tr>
<tr>
<td>EZ</td>
<td>Dutch Ministry of Economic Affairs</td>
</tr>
<tr>
<td>GBN</td>
<td>GeoBusiness Netherlands</td>
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<tr>
<td>Geonovum</td>
<td>National SDI executive committee</td>
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<tr>
<td>GI</td>
<td>Geo-information</td>
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<tr>
<td>GII</td>
<td>Geo-information infrastructure</td>
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<tr>
<td>GIDEON</td>
<td>National policy on geo-information</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>HTSM</td>
<td>High Tech Systems and Materials (‘topsector’)</td>
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<tr>
<td>IAP</td>
<td>ESA International integrated &amp; telecommunications applications</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>IIPBouw</td>
<td>ICT Innovation Platform Buildings</td>
</tr>
<tr>
<td>IIPGeo</td>
<td>ICT Innovation Platform Geo</td>
</tr>
<tr>
<td>IIPSensor</td>
<td>ICT Innovation Platform Sensor networks</td>
</tr>
<tr>
<td>I&amp;M</td>
<td>Dutch Ministry of Infrastructure and the Environment</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>Infrastructure for Spatial Information in the European Community</td>
</tr>
<tr>
<td>KNAW</td>
<td>Royal Netherlands Academy of Arts and Sciences</td>
</tr>
<tr>
<td>KNMI</td>
<td>Royal Dutch Meteorological Institute</td>
</tr>
<tr>
<td>LiDAR</td>
<td>Light Detection and Ranging (an optical remote sensing technology that can measure the distance to an object)</td>
</tr>
<tr>
<td>M4S</td>
<td>Maps4Society</td>
</tr>
<tr>
<td>NAP</td>
<td>Normaal Amsterdams Peil [Amsterdam Ordnance Datum]</td>
</tr>
<tr>
<td>NCG</td>
<td>Netherlands Geodetic Commission</td>
</tr>
<tr>
<td>NMDC</td>
<td>Nationaal Modellen en Data Centrum [National Models and Data Centre; cooperation between 6 Dutch organisations]</td>
</tr>
<tr>
<td>NSDI</td>
<td>National Spatial Data Infrastructure</td>
</tr>
<tr>
<td>NSO</td>
<td>Netherlands Space Office</td>
</tr>
<tr>
<td>ODIN</td>
<td>Open (Geo) Data Innovation Network [Open Data Innovation Network; one of the ICT breakthrough projects as formulated by the Dutch Government]</td>
</tr>
<tr>
<td>OSM</td>
<td>Open Street Map</td>
</tr>
<tr>
<td>PBL</td>
<td>Netherlands Environmental Assessment Agency</td>
</tr>
<tr>
<td>PC</td>
<td>Programme Committee (of the cooperation programme)</td>
</tr>
</tbody>
</table>
Programme Plan Appendix 2. List of letters of support

Below is a list of organisations that have expressed support in writing for this programme and the previous Maps4Science initiative.

Alterra, Wageningen UR
COMMIT, ICT Roadmap
Data Archiving and Networked Services (DANS)
Dutch Ministry of Economic Affairs
Dutch Ministry of Infrastructure and the Environment (I&M)
Erasmus Universiteit Rotterdam
Esri Nederland
Fugro GeoServices B.V.
GeoBusiness Nederland
Geodan B.V.
Geonovum
Google
Hansje Brinker B.V.
HAS Hogeschool
Nationaal Modellen- en Data Centrum (NMDC)
Netherlands Geomatics & Earth Observation B.V. (NEO)
Nieuwland Geo-Information
Oracle
Topsector ICT / COMMIT
Topsector Water
Witteveen+Bos Raadgevende ingenieurs B.V.
Appendix 2: Notes for the completion of an FP form

(Financial Planning; Excel file). The FP form should be submitted with the factsheet, as a separate appendix in PDF format.

Notes

- Personnel credits are entered per establishment post. Enter the total costs for years 1, 2 and 3, and the total costs for year 4 and subsequent years. The personnel credit is initially awarded for up to three years. STW reserves any remaining funds for the continuation after two years. For each person, enter a training place number, a personnel category, the extent of the appointment, the number of months and the accompanying rate (page 3). Check that you have the most recent personnel rates. The rates are set as from 1 July each year but may be adjusted in the interim.
- When calculating the amount, take into account the extent of the appointment (the personnel rates are based on 1 fte) and the year of appointment (start in month 13 is rate from month 13).

**NB:** In view of their salary structure, PhD students are always appointed at the rate from month 1.

- Material credit and investment credit are entered exclusive of Dutch VAT.
- Material credit, foreign travel credit and investment credit are entered as a total for years 1 and 2, and as a total for year 3 and subsequent years. These credits are awarded for up to two years initially. STW reserves any remaining funds for the continuation after two years.
- The personnel credit, material credit, foreign travel credit and investment credit combined, constitute the total necessary financial resources.
- For in-kind contributions (co-funding), enter the official name of the contributing organisation, a brief description of the material and/or personnel contribution and the capitalised amount. This contribution is not included in the four credits mentioned above, but does count towards the total project costs.
- All co-funding requires a letter of support in English from the co-funder, stating the amount pledged.
- Budget splitting (page 2): Indicate how the different credits are to be split between the different institutes. For establishment posts, the corresponding number on page 1 is sufficient here.
- Unallocated credits cease to apply at the end of the project.
Appendix 3: Specimen form ‘Declaration and signing by the applicant’

This form should be submitted with the factsheet as a separate appendix in PDF format.

**Declaration and signing by the applicant:**

All applicants and co-applicants satisfy the criteria relating to ‘Who can act as main or co-applicant’?

All compulsory letters of support are attached (separate appendices in PDF format).

The ‘Financial Planning’ form is attached (separate appendix in PDF format).

Where applicable: Funding has been requested for (parts of) this research proposal from another funding provider (other than indicated potential users).

I hereby declare that I have truthfully and completed and signed the application, including the answers to the following questions, and that I have also done this on behalf of the co-applicants.

Surname and initials:  
Place:  
Date:  

In relation to STW’s Intellectual Property Policy, please answer the following questions. Please provide a brief explanation where necessary.

- Are there any applicants or co-applicants who are involved in one of the indicated users or in parties to which paid or unpaid work is to be tendered? Yes/no If so, state the nature of the involvement (appointment, advisor, member of (governing) board, etc.).
- The knowledge generated in the project will be jointly owned by the research institute(s) and STW. Are the intended user committee members who shall provide co-funding aware of this? yes/no
- Are the users aware of the final version of the research proposal, of each other’s involvement and any positions with regard to intellectual property? yes/no
- Are there any users who indirectly (e.g. via material or investment credit) receive STW finances? Yes/no. If yes, this should be stated in the research proposal (8.5)
- Are there already any verbal or contractual agreements between (one of the) users and the research institute(s) submitting the application? yes/no
- Are all users, parties involved in the project, aware that the results will be made available to everybody without charge, and do they agree to this? yes/no
- Are there any users who wish to enter into contractual agreements at the time when the project is awarded? yes/no
- Are any materials or methods/technologies/ software of third parties (including users) used which are subject to restrictions or commercial secrecy? yes/no
- Are any materials or methods/technologies/ software of third parties (including users) used which were obtained through the signing of a material transfer agreement? yes/no If so, which conditions are imposed on their use?
- Are there any relevant patents/patent applications on the part of the research groups involved and/or potential users? yes/no
- Are there any relevant patents on the part of parties not involved in the project application which might obstruct the utilisation? yes/no
Appendix 4: Assessment of proposals

Programme Committee (PC)
The PC consist of 10 people comprising five representatives from practice, nominated by the Maps4Society consortium (M4S members) and five scientists representing STW. Kyra van Onselen will chair the PC.

The PC Members representing the Maps4Society consortium are:
- Kyra van Onselen PhD, Rijkswaterstaat – GI:, Sr. Advisor
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- Prof. Martien Molenaar, NCG Chairman

The five scientific PC Members representing STW are:
- Prof. Alan Hanjalic, TU Delft (hardware/ICT)
- Prof. Kees Stuurman, University of Tilburg (legal)
- Hylke van Dijk, NHL (serious gaming)
- Rene van Schaik, NLeSC (Netherlands eScience Center) (Big Data, visualisation)
- Prof. Yola Georgiadou, UT, ITC (social sciences).

Role of STW
STW acts as the secretary of the PC and takes care of the administration of the pre-proposals and full proposals submitted. Pre-proposals and KIPs are submitted as well as full proposals are submitted by means of the electronic submission system IRIS. STW assists in the execution of the decisions made by the subsequent regulatory control organisations. Decisions are made by STW.

Assessment of pre-proposals and KIPs by the Programme Committee
The PC members will evaluate the pre-proposals and KIPs. They will review a pre-proposal of KIP on the basis of the following criteria for scientific quality, utilisation perspective and fit into the programme

Scientific quality
- Competency of the research team, inclusion of students and universities for applied sciences (HBO)
- Originality and innovative character of the proposal in terms of organisation
- Chance of the research leading to breakthroughs
- Expected impact on the scientific community
- Research method and approach
- Theoretical background and framework
- Time schedule and deliverables
- Adequacy of budget and infrastructure

Utilisation perspective
- Strong and weak points of the utilisation plan
- Originality and innovative character of the proposal in terms of utilisation plans
- Chance for creative new products
- Potential economic impact
- Potential societal relevance
- Interaction and cooperation between research and industry
- Past performance in the realisation of utilisation by the applicants
- Likelihood that the research will generate patents and/or know-how agreements
• Steps needed for the research results to reach the business environment during and after the period of research

Fit into the programme
• Contribution to the aims of the Cooperation Programme

Based on this evaluation, the PC will advise the proposers whether or not to submit a full proposal. If several pre-proposals target the same subject the proposers may be advised to jointly submit a full proposal. KIPs will be evaluated on the basis of the same criteria. The Advisory Board will be asked to assess the KIP proposals in support of the PC selection procedure. The PC will advise the STW Board about the funding of the KIPs. The PC can decide to maximize the budget available for KIPs.

In case there are many questions regarding the possibilities for KIPs during the matchmaking meeting on 8 November 2013, additional guidelines will be provided in the M4S Newsletter.

**Confirmation and check of the full project proposal by STW**

The STW office confirms receipt of every proposal. A check is made whether or not the full proposal satisfies all the requirements as mentioned in this document, including the ‘freedom to operate’ rule. If in doubt, STW will contact the applicant and may request a revised version.

**Assessment of full proposals by external reviewers**

The reviewers will be asked to answer the following questions:

1. **Scientific quality**

   1.1 To what extent is the proposed research original (in terms of scientific approach, but also of e.g. creative consortium and innovative collaboration, new data sources, new business processes) and how would you rate the innovative elements? What is your estimate of the chance of the research leading to breakthroughs?

   1.2 What is your assessment of the design of the project, including the goals, hypotheses, research methods, and scientific feasibility? How do you rate the multidisciplinary character of the proposed research?

   1.3 What is your assessment of the coherence and time schedule of the proposed lines of research?

   1.4 Is the research group competent enough to carry out the research? Does the group have a relevant position in the international scientific community? Is the available infrastructure adequate? Is the composition of the research group innovative? What is your opinion about the inclusion of students and universities for applied sciences (HBO)?

   1.5 Are the number and category of requested personnel, budget for materials, investments, and foreign travel adequate?

   1.6 What are the strong and weak points of the scientific part of the proposal?

2. **Utilisation potential (the application of the results of the research by third-parties)**

   2.1 What is your assessment of the description of the economic and/or societal potential impacts of the research given in the proposal? Does this project have a convincing probability of research results to be utilised by the consortium partners, benefitting society, or leading to new economic activity?

   2.2 What is your assessment of the contribution and commitment of the users and the proposed composition of the user committee? How do you rate the interaction and cooperation between research, industry and government institutions?

   2.3 Do you expect the application of results to be hampered by commercial propositions, existing patents, eligibility or societal acceptance?
2.4. What are the prospects for collaboration with the industry and knowledge transfer, assuming the project is successful? Please address both aspects. Which additional steps, not mentioned in the proposal, do you consider necessary for the research results to reach the business environment during and after the period of research?

2.5. What is your assessment of the research group’s competence regarding the transfer and application of research results?

2.6. What are the strong and weak points of the utilisation plan? Do you have any suggestions for improvements of the utilisation plan?

3. Fit with the themes of the call

3.1 What is your opinion regarding the strategic contribution of this project to the themes of the programme “Maps4Society”? The objectives of the Cooperation Programme are driven by the ambitions of the Maps4Society Partners. Project leaders should have the ambition to fully cooperate with the Maps4Society Partners and to follow their (business) interests during the course of the programme as well as afterwards should full utilisation require it.

The programme description is attached; see in particular sections 3 and 4.

The combined reviewers’ comments will be sent to the main applicant. The main applicant responds to each question or comment individually. The combined reviewer’s comments including the responses from the applicant(s) form the protocol to be used by the Programme Committee in arriving at their assessment.

Assessment by the Programme Committee

The PC members will evaluate the full proposals, taking into account the NWO code of conduct regarding conflicts of interest (available at http://www.nwo.nl/en/about-nwo/governance). They will individually grade the proposals on a scale from 1 to 9 (see scale definition below), for the scientific quality, for the utilisation perspective and the fit into the programme, based on the peer review protocols of the projects and applicants’ rebuttals. The grades for the scientific quality, utilisation perspective and fit into the programme carry equal weights. A preliminary ranking will then be made based on the average grades given by the individual PC members. In the case of ‘equal scores’, the PC will rank the ‘equal scores’ proposals according to the overall-balance of the programme, whereby the proposal with the best contribution to the overall-balance of the programme will get a higher ranking. The PC will define the final ranking during a confidential PC meeting and will provide written arguments to accompany its final ranking. The list of prioritised projects will be presented to the Board of STW. The Board’s decision will be based on the ranking of the proposals by the PC. The PC can propose and the Board can decide not to spend the maximum available budget for this call in case the quality of the proposals is found to be insufficient or if the number of proposals is very low.

A permanent Advisory Board (AB) plays a key role with regard to the utilisation and may also be involved in reviewing the proposals. Candidates will be sought from organizations such as:

- GeoBusiness Nederland (GBN)
- Geonovum
- Nationaal Modellen en Data Centrum (NMDC)
- Centre for Public Innovation (CPI)
- Digital Delta (top tier sector Water)
- ICT Roadmap (top tier sector HTSM).

Ranking scales

**Scientific quality (range 1-9)**

1. Excellent
• An excellent researcher or outstanding research team.
• A well-chosen problem.
• The method is especially/pre-eminently effective and original.
• Very urgent.

2. Excellent to very good
3. Very good
• A competent researcher or competent research team.
• A significant problem.
• The method is original and effective.
• An urgent approach is important.

4. Very good to good
5. Good
• An average researcher or average research team.
• A routine problem
• With the method, which has some original details, the project can be addressed, although other possibilities are conceivable.

6. Good to moderate
7. Moderate
• It is far from certain that this work is within the capacity of the researcher and/or the research team: the proposal itself contains no obvious errors.
• The problem is moderately interesting.
• Whether the project can be successfully tackled with this standard method, is questionable.
• The project may well be postponed.

8. Moderate to poor
9. Poor
• The competence of the investigator or research team is inadequate.
• The proposal contains serious errors or mistakes.
• This old method is not good for this project.
• Not to be executed, even if there is money left.

Utilisation (range 1-9)

1. Excellent
• This will certainly lead to important new techniques or to very important applications in industry, society and other sciences.
• This research is urgently needed to make an estimate of the consequences of the use of this technology or technique.
• The utilisation is very well thought out and the approach ensures the greatest likelihood of an effective use of the results.

2. Excellent to very good
3. Very good
• This research will likely lead to important new techniques or to important applications in industry, society, or in other sciences.
• This research is highly desirable to make an estimate of the consequences of the use of this technology or technique.
• The utilisation is well thought out and the approach makes it plausible that the results of this work will be used well.

4. Very good to good
5. Good
• This work will possibly lead to new technologies or applications that might be useful for industry, society, or other sciences.
• This research will be needed to make an estimate of the impact of this technology or technique.
• The utilisation is sufficiently thought through, it can probably be improved during the execution of the work. The results of this work will probably be used.

6. Good to moderate
7. Moderate
• Technically this work could possibly be useful at some time or it is conceivable that in due course another science, industry or society or of the results could make use of it.
• The results of this research are not exactly awaited, but they may be useful in the future if an evaluation is made of the consequences of using this technology or technique.
• The utilisation is very unsatisfactory. This should certainly be improved, otherwise it is likely that the results of this work will not be used.

8. Moderate to poor
9. Poor
• Technically the work is bad and redundant, i.e. different, better or similar techniques, which are cheaper are already available.
• This study does not evaluate the consequences of using this technology or technique, moreover, it increases the confusion.
• The utilisation is completely wrong.

Fit in the call (range 1-9)

1. Excellent
• The project fits the call exactly.
• It is in the heart of one or more of the themes of the call.
• This is a key project for the topic of the call.

2. Excellent to very good
3. Very good
• The project fits the call very well.
• It is a very good elaboration of one or more themes of the call.
• This is very important project for the topic of the call.

4. Very good to good
5. Good
• The project fits the call.
• It is a good elaboration of one or more themes, but some parts are outside the scope of the call.
• This project could give an important contribution to the topic of the call. For this, it is important to focus it on the themes of the call during its execution.

6. Good to moderate
7. Moderate
• The project partly fits the call.
• The described work has some relation with the themes of the call, but the main activities are outside scope.
• This project can only have a minor, indirect contribution to the topic of the call. Its main focus is on a different topic or it focuses on a minor and/or insignificant part of the themes.

8. Moderate to poor
9. Poor
• The project does not fit the call.
• The described work is not in any of the themes of the call.
• The vocabulary of the call is used but in the wrong context or without substantiation in the research activities.
• This project will have no contribution to the topic of the call.
Appendix 5: Project agreement

STW’s General Funding Conditions apply with the exception of articles 7.3, 8.2 and 8.3.
7.3. shall apply with the addition that also Rijkswaterstaat shall be involved in the decision.
Instead of 8.2. and 8.3 of STW’s General Funding Conditions, the following shall apply:
Results of the projects shall be made available free of charge to everybody. In the event software results from a
project, such software shall be made available as open source software.
Per project, a specific project agreement shall be signed between STW, RWS and the participant. In this
agreement the foregoing principles will be further detailed, also taking into account the proposal of the participants
with respect to this public availability of results.
A template of such agreement can be provided by STW on request.

Furthermore all users/companies involved shall be asked to confirm their contribution to the project and their
agreement with the open innovation strategy as described in this document. This means that they have to agree
in writing with the fact that Results of the projects shall be made available free of charge to everybody. STW will
ask such confirmation through a letter after the award of the grant. Signature by the company of such letter is a
condition for the grant.
Appendix 6: Links

- IRIS: https://iris.stw.nl/iris/servlet/iris?app=stw
- STW’s General Funding Conditions: http://www.stw.nl/en/content/applicant
- The basic principles of STW’s Intellectual Property Policy (IP policy): http://www.stw.nl/en/content/applicant
- Task and Method of Working of User Committees: http://www.stw.nl/en/content/applicant
- Fixed rates in salary tables: http://www.stw.nl/en/content/applicant
- Payment of thesis printing costs: http://www.stw.nl/en/content/project-leader
- Standard amounts for foreign accommodation expenses: http://www.stw.nl/en/content/applicant
- Standard amounts for capitalisation of co-funding of personnel costs: http://www.stw.nl/en/content/applicant
Appendix 7: Timeline

The following global timeline is foreseen:

<table>
<thead>
<tr>
<th>Preliminary Target Date</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 November 2013</td>
<td>Matchmaking event</td>
</tr>
<tr>
<td>16 December 2013</td>
<td>Publication of Maps4Society call</td>
</tr>
<tr>
<td></td>
<td>Call open for pre-proposals and KIPs</td>
</tr>
<tr>
<td>17 February 2014, 12:00h (noon)</td>
<td>Submission deadline for pre-proposals and KIPs</td>
</tr>
<tr>
<td>between 17 and 21 March 2014</td>
<td>Programme Committee meeting</td>
</tr>
<tr>
<td>10 March 2014</td>
<td>Comments of the Advisory Board on KIPs to the PC</td>
</tr>
<tr>
<td>31 March 2014</td>
<td>Positive/negative advice by PC on pre-proposals (including recommendations);</td>
</tr>
<tr>
<td></td>
<td>recommendation of PC on KIPs to STW Board</td>
</tr>
<tr>
<td>31 March 2014</td>
<td>Maps4Society call open for submission of proposals</td>
</tr>
<tr>
<td>18 April 2014</td>
<td>Decision by STW Board on funding of KIPs</td>
</tr>
<tr>
<td>Starting 21 April 2014</td>
<td>Notification to KIP proposers</td>
</tr>
<tr>
<td>12 May 2014, 12.00h (noon)</td>
<td>Submission deadline for proposals</td>
</tr>
<tr>
<td>26 May 2014</td>
<td>Results of the verification of form requirements and submission criteria</td>
</tr>
<tr>
<td>1 August 2014</td>
<td>Combined expert reviewers’ comments sent to applicants for reaction</td>
</tr>
<tr>
<td>22 August 2014</td>
<td>Deadline for applicant's reactions to the reviewers' comments</td>
</tr>
<tr>
<td>Between 22 and 26 September</td>
<td>Programme Committee meeting</td>
</tr>
<tr>
<td>3 October 2014</td>
<td>PC recommendations ready for STW Board</td>
</tr>
<tr>
<td>17 October 2014</td>
<td>Decision by STW Board on funding of full proposals</td>
</tr>
<tr>
<td>Starting 20 October 2014</td>
<td>Notification of results of the assessment procedure to applicants</td>
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</table>
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Nieuwe technologie mogelijk maken

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