

Call for full proposals for IS2C

The challenge

This STW Perspectief Program aims to encourage new technologies and innovations on durability and service-life assessment for the building and construction sector that can be used to preserve the vital part of the national economy, e.g., our national road and railway infrastructure.

The knowledge of the degradation of concrete itself, and the knowledge of the relation between the actual state of construction and the repair requirements to keep the structure operational is, at this moment, not reliable enough to determine the financial consequences of structures reliably. With the IS2C program, it is the objective to generate the elements necessary to development a next generation “predictive Simulation Model for service-LIFE assessment” (SIMLIFE).

Academic researchers who have send a pre-proposal are invited to submit a full proposals. A direct link between public research centres and the industrial world is aimed at. Therefore, IS2C projects should have at least one industrial partner that participates substantially (cash and/or in-kind) in the research. The contributions of the industrial partners should add up to 25% of the total project costs if expressed in financial means.

Research topics

The IS2C program has the ambition to generate the elements necessary to development a next generation “predictive Simulation Model for service-LIFE assessment” (SIMLIFE) in view of sustainable construction. These elements are the building blocks for the simulation model and generate the knowledge in the field of, key performance indicators, degradation mechanisms, monitoring degradation, material / structural performance, monitoring structural performance, and data management. The program is aiming to attract projects that cover all together the research issues addressed. The research projects are expected to be strongly integrated and cover at least two of the three following main research directions, i.e. Sensing & Monitoring, Degradation mechanisms and Materials & Structures and should address a level of research knowledge that goes beyond state of the art of these research directions.

Budget

For this call a budget of 4.5 M€ is available which must be matched by the contributions of potential technology users (companies/institutes) to a total of at least

6.0 M€. The maximum of project costs that can be requested from STW is € 750.000 per project. A contribution of potential “users” of at least 25% of the total project budget is compulsory and adds up to the requested amount.

The users do not have to co-finance up-front in the program but may contribute in-kind (materials, equipment, facilities, etc.) and/or financially in the project wherein they will participate.

To realize the ambitions and cohesion of the program a budget of 70 k€ for conferences, workshops and events will be reserved on program level. This funding will be made available by the STW board upon advice of the Program Committee.

Who can apply

Scientists employed by Dutch universities or institutes recognized by NWO are eligible to submit a proposal (see OTP-guidelines of STW for eligibility criteria). Since IS2C is a multidisciplinary program, projects which involve two or more research groups with different backgrounds (e.g. experimental physicists, sensor developers, materials scientists and structural engineers) are preferred. In the project description it should be made clear what the added value of the multidisciplinary approach is for the project.

Proposals and selection

The selection of proposals will be done in two steps: a call for pre-proposals and an invitation to the applicants of pre-proposals to submit full proposals. The pre-proposals will be evaluated by the Program Committee. The STW board will decide on the funding of the full proposals.

The pre-proposals and the full proposals must meet at least the following criteria:

- Projects must contain excellent scientific research with an innovative approach.
- To stimulate the integration of disciplines (e.g. experimental physicists, sensor developers, materials scientists and structural engineers) the projects should be performed with more than one research group.
- Proposals should consider both numerical modelling and experimental research work.
- The research projects are expected to cover at least two of the three main research directions of the IS2C program and focus on:

- Sensing & Monitoring: Robustness and endurance of sensor systems
- Degradation mechanisms: Chloride ingress and Alkali Silica Reaction (ASR)
- Materials & Structures: Concrete and/or composite structures
- The research projects should include at least two of the key research topics:
 - 1 - Key Performance Indicators:
 - 2 - Degradation mechanisms:
 - 3 - Monitoring degradation (chemical / physical)
 - 4 - Material / Structural performance
 - 5 - Monitoring structural performance (mechanical)
 - 6 - Data management

Not included in the scope of the IS2C program:

- Sensing & Monitoring
 - Conventional methods of monitoring like, strain gauges, LVDT's, thermocouples, etc.
 - Table-top measurement systems with considerable dimensions and correspondingly high energy consumption.
 - Global Modelling and software development for user interfaces.
- Degradation mechanisms
 - Degradation mechanisms other than Chloride ingress and ASR.
 - Conventional experimental detection techniques, e.g. Volhard method.
 - Qualitative degradation detection, for example no visual observation and/or inspection.
- Material & structures
 - Materials other than cement-based materials.
 - Key performance indicators that are related to degradation mechanisms other than Chloride Ingress and Alkali Silica Reaction (ASR).
 - Structures other than concrete and/or composite structures.
 - Asset management issues like, economics, feasibility and risk analysis, processes information, etc.

Further details about the IS2C program and explanation about the key research topics can be found in the extensive program description.

Funding

Project grants will cover:

- personnel costs (including PhD, PostDoc positions, positions for technical assistants)
- material costs (including national travel costs)
- international travel costs
- costs for equipment

The institution(s) of the applicant(s) ensure(s) the required infrastructure, the supervision and fitting into the research program of the research institute. STW may verify this with the dean or the executive board of

the institute.

The expertise required for the research must be available at the requesting institute(s), so that external consultants will not be necessary. If one co-operates with institutes that cannot apply for IS2C funds, for example TNO or a foreign university, these parties take care of their own funding.

How to submit?

All proposals must be written in accordance with the formal guidelines that can be found in annex 2 of this call. Only proposals written in English and in accordance with the guidelines will be accepted for evaluation.

The deadline for full proposals is Tuesday 18 August 2009 23.59 hours. Proposals submitted after this deadline will not be accepted.

IMPORTANT: Full proposals should be submitted via the new electronic submission system Iris of STW. All information about electronic submission via Iris can be found on the website <http://www.iris.stw.nl>

Full proposals

Full proposals must consist of a detailed description of the expected results, planning of the research and a utilization paragraph. The utilization paragraph should include the important industrial challenges that will be solved, the time frame to implementation and the expected bottle-necks during the implementation. Companies and institutes, which will potentially contribute, should be involved bottom-up during the preparation of the proposal.

A full proposal will be evaluated only if it is preceded by a pre-proposal.

The scientific quality and the utilization perspective of the full proposals will be evaluated individually by peer review. An independent expert Jury of about eight (inter)national experts of universities and industry (applicants will be excluded) will rank the full proposals. Each Jury member will give 3 marks for each proposal: one for scientific quality, one for utilization potential and one for the strategic fit within the program. The marks will be averaged with equal weight to one final score for the proposal which determines the ranking. In addition to the ranking by the Jury, the Program Committee will formulate an advice on the cohesion between the project proposals and their relevance for the program. The decision of the STW board will be based on the ranking by the Jury and the advice of the Program Committee.

The guidelines for full proposals are based on the "Open Technology Program (OTP)" with as main difference that the potential technology users (companies/institutes) should contribute for at least 25% of the total project costs. The proposals should therefore be accompanied by a 'letter of participation' in which the contribution has been made explicit and in which details are given on what, when and how these contributions will be made available. For more details

see "richtlijnen voor het open technologieprogramma"
(www.stw.nl).

Time schedule IS2C proposals

Deadline full proposals (submission only for pre-proposal applicants)	Tue 18-8-2009	23:59
Start experts review	Mon 31-8-2009	
Protocol sent to applicants	Mon 19-10-2009	at last
Deadline protocol ready	Mon 26-10-2009	at last
Ranking by expert Jury ready	Mon 16-11-2009	
Advice Program Committee to STW board ready	Thu 26-11-2009	
Decision by STW board on funding + notification to applicants	Fri 11-12-2009	

Program Committee

- **Dr.ir. E. Koenders, program Chairman**
Faculty of Civil Engineering and Geosciences, Delft University of Technology
- **Prof.dr.ir. O. Adan**
TNO / Faculty of Applied Physics, Eindhoven University of Technology
- **Ir. J. Bakker**
RWS Bouwdienst Rijkswaterstaat Utrecht
- **Dr.ir. A. van Beek**
VOBN, Veenendaal
- **Prof.dr.ir. A. van den Berg**
MESA+ / BIOS, University of Twente
- **Prof.ir. A. van der Horst**
BAM Infraconsult / Faculty of Civil Engineering and Geosciences, Delft University of Technology
- **Prof.dr. J. Kok**
Institute of Advanced Computer Science, Leiden University
- **Ir. J. Mijnsbergen**
CUR Bouw en Infra, Gouda

STW Program Committee secretary:

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Van Vollenhovenlaan 661, 3527 JP Utrecht
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Appendices

- Annex 2: The full proposal
- Annex 3: Assessment and selection criteria
- Annex 4: Assessment and selection procedure
- Annex 5: Utilisation
- Annex 6: Procedure after granting

Possibility of appeal

The applicant may appeal against a decision of the STW board by sending an objection letter including a motivation and argumentation to the general board of NWO within six weeks after the date of the granting or the rejection letter.
Address: Algemeen Bestuur van NWO, Postbus 93138, 2509 AC Den Haag.

Annex 2 Format of the full proposal, deadline Tuesday 18 August 2009, 23:59 hours

STW receives your proposal via the electronic submission system Iris(<http://www.iris.stw.nl>) in pdf format. When you submit your full proposal, please use the same STW-project number the preproposal has.

- ◆ *Mention on the front page 'Perspectief IS2C' in the upper left corner plus STW dossier number*
- ◆ *The maximum length is approximately 12 (twelve) pages of A4, with minimum font size 10 point*
- ◆ *The proposal and support letters must be written in English.*

Administrative data

On maximally half a page you should provide:

- ◆ Title. The title of the project has a maximum of 225 characters. For publicity purposes, a short, non-technical title or acronym is required as well.
- ◆ Name, address, phone number, fax number and e-mail address of the applicants and possible co-applicants and the telephone number of the secretary.
- ◆ STW sends the official correspondence to the main applicant. This is the first applicant mentioned. STW assumes the main applicant will have the supervision on the project. He or she becomes the project leader and bears the final responsibility for the execution of the research and the utilization plan.
- ◆ Applications elsewhere. If support has been applied for elsewhere, you should give the status of this application at the time of submission.

Project description

1. Summaries

The summaries should be clear to those active in the field.

Research summary

Summarize in half a page the context, problem statement, research method and expected results.

Utilization summary

Summarize the utilization potential of the expected results in half a page. Provide everything the reviewers should know about the utilization: the chosen approach, the chosen partners and the way results will be brought into practice.

2. Composition of the group

The current group

Describe in half a page the composition of the team (academic and industrial) that will perform the research as well as the reason this team is fit for this research. Indicate the supervisors of the project, the proposed staff, and how the tasks will be divided.

Available infrastructure

This information includes available laboratory room and equipment.

Candidate researchers

In case candidates for the proposed staff positions are already known, you mention them here. Give a short explanation of their suitability.

3. Scientific description

In this section of maximally four pages an expert in the field should find all information to assess the quality of the proposed research. Treat the following subjects:

Contents of the research

Provide the scientific objectives, the starting-points and the substance of the project. Describe the methods and techniques you will apply, the available knowledge in the team, the knowledge to be developed, and the instruments and models you will use for this. In-kind support of potential users must be an integral part of the research project.

Required personnel and equipment

Provide motivations for staff and equipment and possible other requirements for the research.

Time schedule and allocation of tasks

Describe the proposed course of the research over the years and how the different parts must interact. You give decision points (milestones) and moments research results are expected (deliverables). Further, you indicate which partner will perform which tasks.

STW will ask for a so-called "project plan" for all rewarded full proposals in case that the proposal is not sufficiently detailed. This should contain a more detailed planning and budget.

Connections with other research

Mention similar research that is performed elsewhere, either in The Netherlands or in the rest of the world. Describe the relation with your own research and the contacts with these groups (or the plans to establish them).

4. Fit within the research topics of the program

Describe explicitly the fit of the proposal in the program and its research topics. These topics are described on page 1-2 of this call and in chapter 3 of the IS2C program description. The Program Committee and Jury will use this section particularly for the assessment of the fit in the program.

5. Utilization plan

The utilization plan must be clear to those with general knowledge of the application domain.

The challenge from the practice and the proposed solution

Your research will address problems encountered in industry with not-yet-existing solutions. Indicate the industrial relevance of this problem and the impulse this research gives towards the solution. Indicate which steps you will take to bring the research results into actual practice. Provide details for assessment of the feasibility and the conditions for successful application.

The users committee

All IS2C projects will have "users committees". For further information on this you are referred to the STW website (see Open Technology Program). Mention the contact persons from companies and organisations that already accepted invitations to join the users committee, or that are willing to co-operate in another relevant way to realise utilization of results. Please identify at least three organisations (preferably companies).

Past performance in utilization

Indicate the past successes that the academic team achieved in bringing academic research results into industrial practice, in relation with IS2C related activities or otherwise.

6. Contracts and patents

If there are any contracts relevant to the proposed research project, these should be mentioned here. Also provide patent search results, or the reason why such a search is not necessary for your proposal. Indicate if you have patents or running patent applications in the field of the research. Make clear that there is freedom to operate and that the project is not infringing or developing upon patent claims that are owned by other parties than the applicants. This section takes maximally half a page.

7. Budget

In the main document you find a general explanation on which costs are considered for financing by STW and which are not. All amounts are without BTW (VAT). The length of this section is at maximum one page.

◆ **Personnel**

You can apply for temporary staff: PhD-students, post-docs or technicians. Staff is appointed by the executive institution. The actual appointment is subject to prior written permission of STW. STW may withdraw a grant if vacancies are not filled within a year after granting. The rates for staff can be found at www.stw.nl → infobalie

◆ **Materials**

The costs of office and laboratory goods, small instruments and appliances must be specified here. National travel expenses of the project are also part of this budget.

◆ **Foreign travel expenses**

These are costs for foreign travel and subsistence for congress or working visits abroad for the project.

◆ **Investments**

These are costs for necessary equipment and other investments for the project.

◆ **Contributions of partners**

Provide financial and technical (staff and material) contributions that the partners bring to the project. After

granting STW will invoice the financial contributions and add them to the corresponding credit of the project. Present details on the capitalization of in-kind contributions as well. For in-kind staff contributions the maximum rates are 106 €/hr for senior staff and 75 €/hr for staff up to HBO-level. For material contributions, please explain the capitalization.

◆ **Overview of the total project costs**

Present a table with the planning of the staff appointments and the budgets per project year. Use the above mentioned headers. The partner contributions must be specified separately. The total project costs are the costs for STW as well as the in-kind contributions of the partners. The contribution requested from STW is at most 750.000 €. The partner contributions are at least 25% of the total budget.

8. Literature

In maximally two pages list all relevant and publicly available publications of the participating parties of the proposal, as well as relevant publications of others.

9. Key words, abbreviations and acronyms

Appendix: Participation letters.

These participation confirmation letters written by competent partner authorities, officially state their technical and financial contributions and their interest in the project topic and its potential IP results. The participation letters should be written in English.

Appendix: Potential referees.

(not to be included in the proposal; please submit on separate page)

STW presents the proposal to a number of experts in the field of the proposal. These referees are from the scientific community, knowledge institutes and relevant industry. Please, list four to six (inter-)nationally renowned referees that could potentially review your proposal. The referees should be able to review the proposal objectively and therefore should not have participated as co-author in publications of the applicants.

Annex 3

Assessment and selection criteria

Full proposals will be evaluated by peer review on scientific quality and utilization potential.

Scientific quality

- Originality and innovative character of the proposal
- Contribution to the aims of the Perspectief program
- Expected impact on the scientific community
- Research method
- Time schedule
- Budget
- Infrastructure

Utilization

- Potential economic impact
- Past performance in utilization by the applicants
- Contribution to the development of applied knowledge and aims of the program
- Impact on utilization if the project is carried out successfully
- Different steps needed (time path) to utilize the results
- Chance on patents and/or know how agreements
- Participation of users

Thereafter, the Jury will be asked to assess the proposals on these aspects and also on the strategic fit within the program, see annex 4.

Annex 4

Assessment and selection procedure

Check of the project proposal by STW

The STW office confirms the receipt of every proposal. A general check is performed whether or not the proposal satisfies all requirements as mentioned in this document as well as the freedom to operate rule of STW. In case of doubt STW will contact the applicant and may ask for a revised version.

Peer review

STW presents the proposal to a number of experts in the field of the proposal. These referees are from the scientific community, knowledge institutes and relevant industry. They will review the proposal on the basis of criteria for scientific quality and utilization potential. These criteria are stated in Annex 3. Per project the comments of at least three referees will be used

STW will combine the comments of the referees in a protocol. In this protocol the comments of the individual referees are made anonymous.

Reply by the applicants

STW will send the protocol to the main applicant requesting to react to the comments of the referees. Applicants may add possible project changes to the protocol in such a way that it is clear which comments have resulted in which changes in the proposal.

Assessment by the Jury and Program Committee

An independent Jury of about eight (inter) national experts of universities and industry (applicants will be excluded) will rank the full proposals. Each Jury member will individually give 3 marks for each proposal: one for scientific quality, one for utilization potential and one for the strategic fit within the program on a scale from 1-9. The marks will be averaged with equal weight to one final score for the proposal which determines the ranking. In addition to the ranking by the Jury the Program Committee will formulate an advice on the cohesion between the project proposals and their relevance for the program. The decision of the STW board will be based on the ranking by the Jury and the advice of the Program Committee.

Possibility of appeal

The applicant may appeal against a decision of the STW board by sending an objection letter including a motivation and argumentation to the general board of NWO within six weeks after the date of the granting or the rejection letter.

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Annex 5

Utilization

A very important aspect is the utilization of the project results in industrial practice. Two mechanisms exist here: partners and users.

Partners

Partners are primarily companies that participate actively in the project execution by means of financial or technical (material and/or staff) support. The contributions of the project partners are an integral part of the project and are stated explicitly in the project proposal. Participation letters of the partners are attached to the project proposal. Partner contributions are the main indication for the importance of the research to the partners and for their intention to utilise the results. Therefore partners are seen as users by definition.

IS2C projects should have at least one industrial partner that participates substantially (cash and/or in-kind) in the research. The contributions of the partners should add up to 25% of the total project costs if expressed in financial means.

Users

Users are interested parties that can potentially use the project results. They are allowed to take knowledge of the progress and results of the research performed if they are members of the Users Committee of the project. They can be companies, authorities, research institutes, patient organisations but also consumers or end-users. Users help to make sure that the research is performed as should be and to justify grants from the public sector. For protection of the intellectual properties of the partners it may be necessary for the users to sign a non-disclosure agreement. The project proposal should identify at least three potential users (organisations preferably companies).

Users committee

STW research is funded largely from public resources. Therefore, a proper inspection of the progress and the effectiveness of the research is required. Moreover, the knowledge from the research should be transferred to the community in an optimal way. Therefore, STW demands for all research projects a users committee. Apart from partner representatives, this committee will consist of the users mentioned before and –if possible- one representative of the Program Committee. The users committee is composed by the project leader in consultation with STW. Exclusion of users from the users committee is only possible on explicit, substantiated request of an (industrial) partner that delivers a significant contribution to the project.

Knowledge management

Knowledge management is the regulation of the property, the protection and the exploitation of knowledge. Partners and members of the users committee are first in line for gaining knowledge from the results of the research, but they have no rights to exploit or commercialise this knowledge. To gain such rights a “reasonable compensation” has to be provided.

A well-known and generally accepted measure for knowledge protection is the request for a temporary ban on the publication of particular results. This may be required for e.g. the submission of a patent.

For the IS2C program the STW rules apply, see <http://www.stw.nl/Over+STW/Kennishandelbeleid.htm>

Annex 6

Procedure after granting

During the course of a project the following procedures apply. Extensive information is available in the 'Aanwijzingen voor de projectleider'. This document will be enclosed in the letter awarding the grant. It is also available from the STW office or website.

Granting

The main applicant becomes the project leader, unless otherwise indicated in the project proposal. After granting, the project leader obtains a number of documents in which the legal and financial conditions are stated. The grant is available only after these documents have been signed and returned to the STW office.

Initially, the credits for materials, travel and investments are granted only for the first two years and the staff is granted only for the first three years. STW reserves the remaining budget for the "Request for project continuation" after two years.

Project plan

After granting, the project leader should write a project plan as an appendix to the proposal upon request of STW, containing a more elaborate planning and task scheduling, including the in-kind contribution of the partners. The project plan contains a rolling forecast: At least once a year and whenever necessary the project plan is adapted to the situation. The next year is planned with most detail. The project plan is written together with the partners and is presented to STW as well as the users committee..

The commitments of the project partners to the execution of the project as put forward in the project plan may form a project contract between the partners and STW. A detailed division of tasks is given.

Start of the project

The budget is available from the moment that the abovementioned documents are received by STW. The start date of the project is the date of the appointment of the first staff member. Usually, this is not the date of granting.

Users committee en reporting

Approximately six months after the start of the project the users committee will meet for the first time. Hereafter, the committee will meet once or twice a year to discuss the progress. The users committee will receive all scientific publications for approval prior to publication. They will also receive all progress reports.

The project leader reports semi-annually on the progress of the research to the STW office. The representative of the Program Committee reports to the Program Committee on the progress of the project in terms of issues and recommendations.

Contribution to the programme

Each IS2C project will contribute to the coordinating and cohesion stimulation activities as described in the program description and as will be developed by STW and the Program Committee during the course of the IS2C program. Examples are the attendance and presentation of project results on the annual IS2C program conference, input for the program website etc.

Continuation of projects

For projects that last for three years or longer, the project leader must submit a continuation request one and a half year after the start of the project. To decide on the continuation STW will be advised by the users committee.

Termination

Termination of projects before the official final date is possible if the commitments are not fulfilled (anymore) or if the scientific quality of the research or utilization is below the required level.