VerDuS SURF Pop Up

2019, 2nd round

Ministry of Infrastructure and Water Management
Ministry of the Interior and Kingdom Relations
Platform31
National Taskforce for Applied Research (NRPO-SIA)

Call for proposals

Social Sciences and Humanities
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Introduction

1.1 Background

In the context of the knowledge initiative Connecting Sustainable Cities (Verbinden van Duurzame Steden, VerDuS), the Ministry of Infrastructure and Water Management and the Ministry of the Interior and Kingdom Relations, as well as NWO, NRPO-SIA and Platform31, have developed the research programme Smart Urban Regions of the Future (VerDuS SURF) for the period 2014 to 2020. Key aspects of the programme are questions from cities and urban regions as well as urgent issues from urban practice.

The ambition of SURF is to develop a broad, sustainable knowledge base and innovations that will enable the Netherlands to tackle future issues in the area of urban/regional development and to realise action perspectives for policymakers and administrators. An important challenge for cities is connecting challenges at various spatiotemporal scales. For example, how can housing, strengthening the regional economy, energy transition and climate adaptation be realised integrally in relation to each other? How are infrastructures and the use of space matched with due consideration to societal developments?

VerDuS SURF offers cities and urban regions a unique opportunity to tackle urgent local issues. Cities are confronted by a large flow of (spatial) information and knowledge in the area of urban and regional development. The available knowledge does not always tie in well with urban practice and therefore remains on the shelf. Consequently, opportunities are missed for the sustainable strengthening of the economic structure and a better quality of life. In the programme VerDuS SURF, the intention is not only to answer the question “what” (knowledge), but to also make the translation to “how” (practice). In urban practice, the relationship between different policy areas and research fields often recurs in the problems faced and their solutions.

The knowledge development within VerDuS SURF ties in with five societal challenges at the interfaces of spatial planning, housing, accessibility, economy, and governance (see Annex A). The programme therefore focuses on research into creative ideas in the areas of urban structures and infrastructure, applied technology and governance. The research also focuses on the effects of those ideas on spatial development and the function of cities and urban regions, as well as their vitality and resilience in the longer term.

Assessment rounds VerDuS SURF Pop Up have been organized regularly since 2016. The current round is the final round for the financing of small projects within this programme.

1.2 Available budget

A budget of 300.000 euros has been reserved for VerDuS SURF Pop Up 2019, 2nd round.

1.3 Validity of the call for proposals

The deadline for submitting proposals is 26 September 2019, at 14:00 CE(S)T.
VerDuS SURF provides opportunities for both multi-year and short-term research. Through funding VerDuS SURF Pop Up projects, the Board of Directors of VerDuS is able to respond to the need for knowledge about new developments and ad hoc questions. There is a need for bottom-up initiatives to respond to (knowledge) gaps within the themes of the programme that are not yet attended to.

In addition to the themes of the VerDuS SURF projects that were already awarded funding (see the VerDuS website), proposals in the area of the societal challenges ‘Housing and the built-up environment’ and ‘Economy’ and the complex spatial coherency in the developments of these societal challenges (see Annex A) are particularly welcome. Topics could for example regard housing in relation to cyclical developments in the construction industry, or new business models related to safety and efficiency. Another example is the current urban development where former business parks are obtaining a new position and interest within the city, and there is a need for insight in the spatial clustering of business and reinforcement of urban structures.

The aim of VerDuS SURF Pop Up projects is to increase the quality and relevance of the entire programme (see the SURF Programme Study) throughout its duration. This will allow to respond to new questions that emerge from current projects later in the programme, for example.

VerDuS SURF Pop Up projects provide an opportunity for specific, well-defined knowledge questions. A proposal can focus on innovative scientific research, but the funding can also be used for additional knowledge transfer, the development of a tool or making research applicable in another way (added value/valorisation).

Activities in the VerDuS SURF Pop Up projects can therefore concern a wide range of initiatives, such as consortium building, exploring specific questions, setting up alignment projects, integral or integrated studies, valorisation and innovation initiatives, harvesting activities, agenda building, international connections, anchoring initiatives, and development of geo-ICT environments.
3 Guidelines for applicants

3.1 Who can apply

Applications can be submitted on behalf of consortia of at least one researcher from the knowledge institutions stated below (the main applicant) and at least one public or private partner. Researchers from the following knowledge institutions can submit applications:

- Dutch universities;
- KNAW and NWO institutes;
- universities of applied sciences;
- TO2 institutions (including TNO).\(^1\)

Public or private parties may not submit an application, but can be part of a consortium. Applicants should satisfy the administrative conditions of this call (see section 4.2).

3.2 What can be applied for

VerDuS SURF Pop Up projects have a maximum duration of 12 months; there is no minimum duration. A project must have started within three months after the grant is awarded (i.e. the date as stated in the grant award decision). Applications can be submitted with a total project budget of maximum 50,000 euros (i.e. total funding and co-funding combined).

Public or private parties contribute to the project by means of in-kind or cash co-funding.\(^2\) For each application, a Letter of Commitment (LoC) should be added for each contribution pledged. In this letter, the party concerned confirms that pledged contribution in case the application is awarded funding.

The funding:

- can only be requested for projects that start after the project start date stated in the grant award decision (i.e. not currently running projects or initiatives) and no later than three months after the date on which the grant award decision was issued. Costs incurred before the start of the project are not eligible for funding;
- may not replace existing funding;
- will not be given out for contract research;
- should agree with, i.e. be in line with, the European legislation for state support\(^3\).

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\(^1\) The members of the TO2 federation are Deltares, ECN, Marin, NLR, TNO and WUR/DLO. See also www.to2-federatie.nl (website in Dutch).

\(^2\) See the NWO Grant Rules 2017 for a definition and explanation of co-funding.

\(^3\) See Directive EU 1407/2013 of 10/12/2013, EC regulation 651/2014 of 17/07/2014 and the announcement of the European Commission 2014/C 198/01 to check whether the rules for state support are complied with.
Guidelines for applicants

**Personnel costs**

Funding can be requested for the salary costs of personnel to be appointed for the project. Funding can be used for the appointment of junior or postdoc researchers or at the Dutch knowledge institutions stated (see section 3.1). The duration of the appointments may never exceed the duration of the funding that is awarded for the proposed research. Depending on the knowledge institution in question, VSNU, NFU or HOT rates can be used.

**Personnel under VSNU and NFU rates**

Personnel costs will be calculated based on the most recent Approval of funding for scientific research. The maximum salaries of personnel at universities can be found at [https://www.nwo.nl/en/funding/funding+process+explained/salary+tables](https://www.nwo.nl/en/funding/funding+process+explained/salary+tables). The personnel costs for junior researchers are determined using the tariffs of first-year PhD students. For personnel at university medical centres, the current NFU rates can be found at [www.zonmw.nl/en/news-and-funding/funding/grant-conditions-and-finances/](www.zonmw.nl/en/news-and-funding/funding/grant-conditions-and-finances/). Remunerations for PhD students/scholarship PhDs at a Dutch university are not eligible for funding from NWO.

**Personnel under HOT rates (TO2 institutions and universities of applied sciences)**

For the appointment of personnel at universities of applied sciences, the Handleiding Overheidstarieven (HOT) system has applied since 1 January 2018, and in particular the rates in the column ‘Cost-covering hourly rate’ ('Kostendekkend tarief per uur'). These are based on the salary scale of the employee concerned according to the collective labour agreement for universities of applied sciences [www.nwo.nl/documents/magw/projectbeheer/nro-handleiding-overheidstarieven-2017](www.nwo.nl/documents/magw/projectbeheer/nro-handleiding-overheidstarieven-2017) (in Dutch). These HOT rates can be used for the appointment of personnel at a TO2 Institute or a university of applied sciences (see section 3.1). When determining the hourly rates, the actual costs excluding Dutch VAT should be assumed. In kind contributions may be determined with a maximum hourly rate of 125 euros excluding Dutch VAT. In the project budget, the size and nature of the personnel costs, including the rate used, must be specified and justified.

**Research leave grant**

Personnel with a tenured appointment such as assistant professors, associate professors or full professors, and lectors or researchers at universities of applied sciences can be seconded from educational responsibilities by means of a research leave grant. The employer can use this grant to cover the costs of appointing a replacement. This replacement covers the non-research aspects of the applicant’s tasks (i.e. educational and supervisory tasks). The research leave grant may only be used for activities in the context of the project. The grant is not to be used to appoint other personnel at the institution or the partners. For the research leave grant, the fixed salary rate of a postdoc is used with a maximum appointment of 0.2 FTE.

**Material costs**

Funding can be requested for material costs for activities that are directly related to the project, for example the costs for national and international meetings, travel, websites, publications, experiments, holding interviews and surveys, the acquisition of data files, equipment specifically required for the research (with the exception of computers and standard software), the hiring of non-scientific personnel such as a student assistant or programmers, and the costs for drawing up an auditor’s statement.

The following costs are not eligible for funding:

- costs for computer use at university computer centres and costs of using laboratories;
- accommodation, overhead and depreciation costs;
- costs of equipment, consumables or technical or administrative support that are attributable to the standard package of facilities of a knowledge institution;
- costs or open access publishing (see also Open Access under section 3.5).
3.3 When can applications be submitted

Within this instrument, calls for proposals are usually published several times per year. The latest information about future submission deadlines can be found on the grant page on the NWO website.

The deadline for submitting proposals for VerDuS SURF Pop Up 2019, 2nd round is 26 September 2019, at 14:00 CE(S)T.

3.4 Preparing an application

The following steps should be completed when drawing up an application:

- Download the application form from the online application system ISAAC or the NWO website (bottom of webpage).
- Complete the application form.
- Save the form as a PDF file and upload it in ISAAC together with any annexes that are required.

Research field codes

In the application form and the field concerned in ISAAC, you must enter one or more research field codes that correspond with the subject of the proposal. For this, you are asked to only make use of the NWO research field codes, which can be found at [http://www.nwo.nl/en/funding/funding+process+explained/research+fields](http://www.nwo.nl/en/funding/funding+process+explained/research+fields).

Stating co-applicants and consortium partners

In ISAAC, please enter the details of the consortium partners as co-applicants as well, because the ISAAC system does not have a separate field for consortium partners. It is important that you enter the details of all persons as completely as possible.

Annexes

Only the project budget (see section 3.2) and LoC’s (see section 3.5) may be uploaded as annexes to the application. You may not add any other additional information to the application in the form of annexes (such as additional results, manuscripts, figures or diagrams) nor upload these in ISAAC. Such additional information will not be taken into consideration.

3.5 Conditions on granting

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

Specific terms and conditions for this instrument

For the call VerDuS SURF Pop Up 2019, 2nd round, the following also applies.

Letter(s) of Commitment

When the application is submitted, the financial commitment of the parties (cash and in-kind co-funding) must be confirmed with a letter of commitment. This letter is an explicit statement of the agreed-upon financial and/or capitalised personnel and/or material contributions, an explanation of how the co-funding will be used and an explanation of how the results of the research will contribute to the development of policy or everyday practice. The amount stated in the letter must be the same as the amount stated in the project budget. Furthermore, in an LoC, a partner can state that they are willing, if so desired, to make further agreements in a consortium agreement or in another manner (see “In cash or in-kind co-funding” below). An LoC should be uploaded in ISAAC as annexes to the application. If an application is awarded funding, NWO can request the private and/or public partner(s) to confirm
the co-funding (confirmation of contributions by third parties). A template for the LoC can be found on the grant page (in Dutch).

**In cash or in-kind co-funding**

The greater the emphasis of the project on everyday practice, the greater the importance that will be attached to financial and other contributions from practice during the assessment procedure. Co-funding is compulsory, although not compulsory in cash. Consortium partners that provide co-funding cannot apply for funding or receive funding from NWO as well.

In the NWO Grant Rules 2017, the conditions for in cash contributions from public and/or private parties are explained. As VerDuS SURF Pop Up concerns small projects with optional in cash co-funding, a consortium agreement (see section 1.2) or having the flow of in cash co-funding go through NWO (see section 3.2.4) are not required. It is therefore expected that main applicants, co-applicants and consortium partners will make explicit agreements with each other with respect to the financial obligations and other possible issues (including about the flow of in cash co-funding) for a project. A consortium agreement for the knowledge institution can be helpful in this respect.

NWO reserves the right to reduce or change the funding requested for scientific, policy or budgetary reasons as a condition for an eventual awarding of a grant. If an application is awarded funding, then NWO will automatically appoint the main applicant as project leader. This person will receive the instructions for project leaders and the general grant regulations from NWO. NWO will monitor the progress and evaluate the results of the research funded relative to the planning and intended output stated in the application. NWO retains the right to implement sanctions if significant negative deviations are observed. These sanctions will be further explained with the awarding of the grant.

**Open Access**

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

**Data management**

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

1. **Data management section**

   The data management section is part of the research proposal. Researchers should answer four questions about data management within their intended research project. Therefore before the research starts the researcher will be asked to think about how the data collected must be ordered and categorised so that it can be made freely available. Measures will often need to be taken during the production and analysis of the data to make their later storage and dissemination possible. Researchers can state which research data they consider to be relevant for storage and reuse.

2. **Data management plan**

   After a proposal has been awarded funding the researcher should elaborate the data management section into a data management plan. The data management plan is a concrete elaboration of the data management section. In the plan the researcher describes whether use will be made of existing data or a new data collection and how the data collection will be made FAIR: Findable, Accessible, Interoperable, Reusable. The plan should be submitted to NWO via ISAAC within a maximum of 4 months after the proposal has been awarded funding. NWO will approve the plan as quickly as possible. Approval of the data management plan by NWO is a condition for disbursement of the funding. The plan can be adjusted during the research.
Guidelines for applicants

Further information about the data management protocol of NWO can be found at [www.nwo.nl/datamanagement](http://www.nwo.nl/datamanagement).

### 3.6 Submitting an application

An application can only be submitted to NWO via the online application system ISAAC. Applications not submitted via ISAAC will not be taken into consideration.

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

When you submit your application in ISAAC, you will also need to enter additional details online. You should therefore start submitting your application at least one day before the deadline of this call for proposals. Applications submitted after the deadline will not be taken into consideration.

For technical questions, please contact the ISAAC helpdesk, see section 5.1.2.
4 Assessment procedure

4.1 Procedure

The NWO Code for Dealing with Personal Interests applies to all persons and NWO employees involved in the assessment and/or decision-making process.

Applicants can follow the progress of the assessment procedure via their ISAAC account. No rights may be derived from this.

As VerDuS SURF Pop Up concerns projects of short duration with a relatively small budget, neither external referees nor selection committees will be used for this funding instrument. The Board of Directors of VerDuS has appointed a SURF Programme Committee which will advise the Supervisory Board during the granting decision process.

Step 1: Administrative check

After an application has been received, NWO will first perform an administrative check to determine whether the application is eligible in accordance with the administrative conditions for this call for proposals (see section 4.2). Only proposals that satisfy these conditions will be declared eligible and taken into consideration. If an application fails to satisfy the conditions but a correction seems possible, then the applicant will be given the opportunity to modify his/her application and corrected applications will still be taken into consideration after approval by NWO. If the application is not corrected in a timely manner, then it will not be taken into consideration. For applications that failed to satisfy the conditions and/or cannot be corrected in time, the main applicant will be informed of this decision in writing.

Step 2: Assessment

Applications taken into consideration will be assessed by the SURF Programme Committee. For each application, at least two members of the Programme Committee will write an assessment based on the assessment criteria as described in this call (see section 4.2). Based on the pre-assessments, the Programme Committee shall provide each application with a qualification (see www.nwo.nl/qualifications) and draw up a granting advice for the Board of Directors of VerDuS. The applications under consideration will be compared and ranked. The Programme Committee may rank an application higher due to policy considerations so that the themes and objectives of the call are served to maximum effect. Only applications with the qualifications ‘excellent’, ‘very good’ or ‘good’ will be eligible for funding. In this assessment procedure, applicants will not have the opportunity to submit a written response (rebuttal) that will be considered by the programme committee as part of the assessment procedure.

Step 3: Granting decision

The Board of Directors of VerDuS will decide which of the applications under consideration will be awarded funding based on the granting advice from the SURF Programme Committee.

Step 4: Granting

Once the Board of Directors of VerDuS has taken a granting decision, the main applicants will be informed of this in writing as soon as possible. This letter will state the qualification awarded by NWO and the reasons for the decision. Every effort will be made to inform the applicants about the granting decision within fourteen weeks after the deadline for submitting proposals.

The data management section in the application will not be assessed and will therefore not count towards the decision on whether to award funding to an application. However, the programme committee can provide advice about the data management section. If an application is awarded funding, then the researcher will have to elaborate this section into a data management plan. Applicants can make use of the advice from the programme committee when doing this.
Assessment procedure

Provisional timetable

<table>
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<th>Event</th>
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<td>26 September 2019</td>
<td>Deadline submitting proposals</td>
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<td>Early October 2019</td>
<td>Eligibility check</td>
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<tr>
<td>November 2019</td>
<td>Assessment by SURF Programme Committee</td>
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<td>December 2019</td>
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<tr>
<td>Late December 2019</td>
<td>Announcement granting decision</td>
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4.2 Criteria

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

During the assessment, attention is paid to:

- a realistic representation of the knowledge utilisation possibilities (or the lack of possibilities);
- the extent to which the action plan is made tangible with respect to knowledge utilisation.

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

Examples of knowledge utilisation can be found at [www.nwo.nl/en/policies/knowledge+utilisation](http://www.nwo.nl/en/policies/knowledge+utilisation).

Conditions for submission

Upon submission, an application should satisfy the following conditions:

1. The application is written in Dutch or English;
2. The application has not been submitted more than once in the past;
3. The compulsory application form has been used, and all questions in it have been answered;
4. The maximum word count permitted per question or section has not been exceeded;
5. The following aspects apply to the main applicant:
   a. Each application has a single main applicant;
   b. The main applicant has an employment contract at one of the acknowledged Dutch knowledge institutions throughout the application process and the duration of the proposed project;
   c. The main applicant submits the application on behalf of the entire consortium. He/she is actively involved in the project and is responsible for the scientific coherency, the results and the financial accountability;
   d. A researcher may act as main applicant for the submission of a VerDuS SURF Pop Up application once per calendar year.
6. The project budget is balanced and has been drawn up in accordance with the requirements in this call brochure (see section 3.2) using the Excel template prescribed;
7. Besides the institution of the main applicant, there is at least one public or private partner
Assessment procedure

8. The theme of the application ties in with the content of the themes of the VerDuS SURF programme;
9. The co-funding satisfies the conditions set (see section 3.5);
10. The LoC(‘s) in which the co-funding is pledged have been provided as an annex to the application;
11. Besides the LoC(‘s) and the project budget, no other annexes have been attached to the application.

Assessment criteria

The VerDuS SURF Pop Up applications are assessed for the following aspects:

I - Quality of the application (40%)
- Are the research questions and objectives clearly defined, sufficiently delineated and satisfactorily elaborated?
- Does the proposal have a clear (theoretical) underpinning?
- Are the proposed methods and techniques suitable for the investigation of the problem posed and the answering of the research questions?
- Does the work plan have a logical structure, and is it well phased and realistic?
- Are the sources stated accessible and suitable for answering the research questions?

II - Relevance for and contribution to the VerDuS SURF programme (40%)
- To what extent does the project contribute to the development of the VerDuS SURF programme?
- To what extent is this a current and urgent topic?
- What extra boost and added value does the project offer to existing initiatives and VerDuS SURF projects already awarded funding?
- What is the proposal’s relevance for policy and society?
- Are the right stakeholders and target groups involved in the design, realisation and completion of the project?
- Are science, society and industry being connected with each other?
- Are the right activities being deployed to reach the target group(s)?
- To what extent is dissemination to other regions and special projects possible?

III - Financial (‘value for money’) (20%)
- What products (output) are planned?
- Is the output in proportion to the funding requested?
- What is the added value of the in-kind co-funding and, if applicable, what is the balance between the funding and in cash co-funding?
5 Contact details and other information

5.1 Contact

5.1.1 Specific questions

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

Ms Maxime Verbeij  
T: +31 70 344 06 80  
E: surf@nwo.nl

5.1.2 Technical questions about the electronic application system ISAAC

For technical questions about the use of ISAAC please contact the ISAAC helpdesk. Please read the manual first before consulting the helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours CE(S)T on +31 (0)20 346 71 79. However, you can also submit your question by e-mail to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

5.2 Other information

The instrument VerDuS SURF Pop Up is reviewed each year to determine how to further improve it in order to achieve its objectives. Following the experiences in 2018, it was decided not to implement any changes for the rounds in 2019.

Since 2016, one or two rounds of VerDuS SURF Pop Up were open for applications every year. This VerDuS SURF Pop Up 2019, 2nd round will be the final round in this programme.
6 Annexe(s)

In this call brochure:

- Annex A. Societal challenges SURF

On the grant page and the tab ‘Documents’ in ISAAC (in Dutch):

- Attachment 1. VerDuS SURF Pop Up 2019 – application form
- Attachment 2. VerDuS SURF Pop Up 2019 – template project budget (question 12)
- Attachment 4. VerDuS SURF Pop Up 2019 – explanation application form
Annex A. Societal challenges SURF

The knowledge development within SURF ties in with societal changes in the areas of: 1) space, 2) housing and the built environment, 3) accessibility, 4) economy and 5) governance, and is aimed at research into creative ideas areas of: (i) technology applied to urban structures and infrastructures, (ii) governance, for which the research focuses on the effects of those ideas, (iii) vitality, and (iv) resilience of urban regions (see the SURF Programme Study). Furthermore, the research must be (v) region specific.

Scope of SURF

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<th>Societal Challenges</th>
<th>Creative Ideas</th>
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<td>2) Housing ii. Governance</td>
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<td>3) Accessibility iii. Vitality</td>
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<td>4) Economy iv. Resilience</td>
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<tr>
<td>5) Governance v. Region-specific</td>
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</table>

The five Societal Challenges, the five Creative Ideas and the analytical approach from the SURF Programme Study⁴ (driving forces, structuring factors and steering mechanisms) are depicted in the following schematic representation of the scope of SURF; a guiding concept for researchers and a concept that must provide direction in the search for smart solutions for societal challenges that result in vitality and resilience of urban regions. Societal Challenges are the starting point for this.

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⁴ In the summer of 2014, a writing group worked on a programme study for the SURF programme. This programme study is available on the VerDuS website: [http://surf.verdus.nl/3631](http://surf.verdus.nl/3631) (English version available)
In the SURF programme, the ‘S’ stands for smart. In the SURF programme, two aspects are distinguished in smart applications.

1. **Smart stands for smart combinations of existing technologies, especially those in the area of ICT.** Activities in the urban area, such as travel, housing, recreation and food can be made smarter by using the possibilities of the internet, for example. This includes both high-tech and low-tech solutions. This technology can be used for city services, the operation of infrastructures and urban design.

2. **Smart stands for self-organising, bottom-up initiatives in which residents and consumers together with companies meet needs that were previously met by the government and utility companies or supply chains in industry.** Unutilised potential can be drawn upon in this regard, leading to a more sustainable, accessible, cohesive and healthy urban society. Smart stands for new alliances of organisations in the public and private sphere.

A more detailed description of the five societal challenges and the SURF study:

1. **Space: Smart structures for quality and contrast**

   - The spatial structure of the Netherlands is unique, with its network of compact cities and urban regions and its open and natural rural areas. The challenge is to cherish and strengthen this internationally distinctive quality. Several questions apply to this societal challenge: How can improvements in the quality and use of nature and the landscape be achieved? How can the broad term quality of life be realised in relation to healthy urban living? How can new models be developed and used for the management and funding of urban areas? How can a strengthening of the specific relationship between the city and its environs be achieved, for example in the ‘Mosaic Metropolis of Brabant’? What role do urban interaction environments play in the formation of metropolises, and how do they contribute to the international competitive strength of regions? Is that different for knowledge economies than for port economies, for example? How can the spatial structure of the urban network be strengthened, e.g. by high urban allure top locations, and how can we find the right levels of scale for all of these questions in terms of thinking, planning and realisation? How and where can space for experiments be created for new solutions, e.g. at former locations of the Ministry of Defence, monasteries and churches, industry and agriculture, and for the utilisation and repurposing of cultural heritage?

2. **Housing and built environment: Smart development avoiding social segregation**

   - Population decline and growth pose new challenges while at the same time the number of empty offices, shops and other company locations is increasing. Ageing and empty buildings are becoming more visible, and there is a real risk of social segregation processes continuing. Several questions apply to this societal challenge: Can the urban transformation
challenge be addressed both in terms of housing supply as well as offices, shops and public real estate? How can this be achieved with government bodies and corporations as well as market parties having limited financial space and the housing market still suffering? How can the preferences and behavioural patterns of residents, travellers and consumers be better met; high and low educated, with a minimum or high income; with new forms of cohabitation and living together; ageing, individualisation? How can 300,000 new homes be built in the existing urban areas without further increasing the process of social segregation because starters and people with an average income are being driven away from the city centre?

3. Accessibility: Smart mobility, smart grids

It is expected that mobility will continue to increase (rising welfare, smaller households, ageing), with the strongest growth in the hinterland connections and in areas that already experience the biggest bottlenecks. Smart mobility requires smart grids. Several questions apply to this societal challenge: How can the international accessibility be facilitated between top locations in the Netherlands and other countries (for example: the region Eindhoven, Aachen-Liège, the Flemish Diamond, the Metropolitan Region of Amsterdam and the Metropolitan Region Rotterdam-The Hague) for the transport of both goods and people over road, rail and water? What are the new concepts for sustainable urban mobility? How does the multimodal transport of goods and people (city distribution) fit within this? How can we realise a better utilisation of public transport nodes, for example using digital/electrical technology? How can spatial and behavioural measures strengthen the position of sustainable traffic and transport (especially cycling and walking)? How can the Dutch infrastructure, which was largely built in the 1960s and 1970s, be renewed in the coming decades and in a smart manner, where possible? How can the emission of fine matter, soot and other traffic-related air pollutants be reduced for a healthier and more attractive urban environment? How can electric transport and new arrangements for traffic and transport, such as car sharing and chain mobility, contribute to this?

4. Economy: Smart specialisation and smart cities in synergy

Economic development involves a double challenge: (a) a higher ranking of the Netherlands in the global top 10 of economies, which are increasingly interwoven and compete with each other and (b) successful urban regions that compete with each other at the European and global levels. This is about developing smart specialisation in conjunction with smart cities. Several questions apply to this societal challenge: Why do certain regions flourish whereas other flounder? Which foreign regions should we take as an example given the international competitive relationships? What is the right scale (urban region, Randstad, Delta metropolis) to be able to compete successfully? What are the consequences of the emergence of the Netherlands as a knowledge economy (with new players and new geography) for our spatial structure? How can the potential of border regions be better utilised? How can space be created for the redevelopment of harbours and industrial areas and, to a limited extent, for new areas? How can investments be concentrated in focus areas? How can the top sectors be strengthened through the creation of specific spatial areas: from regional clusters and campus development to attractive location environments for offices and head offices, R&D and design facilities, production/logistics, but also for highly qualified knowledge workers with regional knowledge and innovation networks that are part of global networks? How can the connection between education and the employment market be strengthened, especially in sectors with a shortage of trained (technical) personnel? How can the transition to sustainable energy, circular economy and clean technology be facilitated? How can sectorial or regional investment funds be created, and how can the funding of innovative small and medium-sized enterprises be improved? How can the international allure of Dutch urban regions be improved, for example through international events, including (Brabant, Leeuwarden) cultural capital of Europe?

5. Governance: Smart alliances and self-organisation for smart governance

The organisation of governance in the Netherlands is not adequate for the complex challenges that we now face, while the existing system of rules and procedures hinders innovative solutions. More than any given governance subject, the formation of agglomerations in the Netherlands means connecting what exists already, the assumption of borrowed size and complimentary thinking: in other words, a form of governance in which people think and act in the spirit of the sum of the parts, regardless of the level they work at. In SURF, this concerns not only governance within the city but also
between cities, neighbouring municipalities and between societal challenges. SURF also offers the space to investigate themes such as citizenship\(^5\) and administrative power in relation to urban/regional development.

Several questions apply to this societal challenge: How can new forms of governance be developed without establishing new governing bodies, with specific attention for the housing market (buying, renting and a mixture of these), specific and vulnerable groups and areas, energy corporations and investment in smart grids, and management of the nature and landscape? Which possibilities are there for ‘deregulation policy’ whereby citizens are given the opportunity to realise sustainable initiatives without becoming entangled in the existing web of legislation? How can a balance be struck between conventional forms of democratically legitimised political decision-making and government steering on the one hand, and bottom-up initiatives from participation in society on the other? What is the appropriate balance between steering and control? How can we realise a new policy of politics of smart governments? How can cities contribute to strengthening the regional competitive capacity and safeguarding employment via strategic alliances?

Solutions to this question require connections with everyday practice as well as co-creation. Which solutions are there for the bottleneck in which, on the one hand, government bodies are pushed into the governance corner (for example provinces and municipalities in the periphery of a large urban region) and, on the other hand, the importance of organising a joint (regional) approach for metropolitan issues that is both unequivocal and powerful? Which success factors can be distinguished in the collaboration strategies in the area of innovation, and which governance principle plays a leading role in this? Can best principles be formulated for such collaborative strategies? Do societal challenges in urban regions (and the tackling thereof) provide reason to intervene in the governance structure in those regions? Does the governance structure of urban regions influence the economic and other development of these regions? Which governance planning principles are important for urban regions, and what can be learnt from conventional practices? Which conditions/circumstances are needed to give social innovation in cities as much space as possible, and which style of governance is appropriate for this? Which governance/public service competencies are needed for a better connection with societal initiatives, and how do such initiatives in practice relate to formal democratic institutes, such as the municipal council?

\(^5\) See RLI advisory report ‘De toekomst van de stad’ ['The future of the city'].  

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