



Rijkswaterstaat
*Ministry of Infrastructure and the
Environment*

Public Procurement of Innovation Policy Framework



Preface

The weather is becoming more extreme, roads are being used more intensively and information technology is radically changing our world. Rijkswaterstaat is faced with quite a challenge – a challenge that can only be met if we join forces with market parties, knowledge institutions and other partners. Working together on innovative solutions will keep our country safe, accessible and liveable at an affordable cost.

To this end, we are already on the right track. In the MultiWaterWerk project, we are designing locks for the next twenty years. In the Digital Delta project, we are working to expand the amount of water data we share with our partners. At the Brouwersdam tidal power station project, we are researching the possibilities of generating sustainable energy. And, in the CHARM project, we are working on a traffic control centre for the future together with road authorities from the UK and Flanders. In addition, Rijkswaterstaat is a partner in the enterprise policy that is geared towards making the Dutch industry sector more innovative and stimulating our economy.

Innovation calls for having the courage to venture off the beaten path and not be afraid of making mistakes. But it also calls for clear priorities, and for leadership that creates room for experimentation and frees up scarce resources for working on innovations.

This Public Procurement of Innovation Policy Framework describes the partnership and procurement arrangements Rijkswaterstaat wants to use to bring about these innovations. Rijkswaterstaat is also working on an Innovation Agenda which outlines which innovations will be given the highest priority.

An important focus in all of this is Rijkswaterstaat's outward-looking approach. Many innovations we need are already being developed, and this is something we must benefit from in full. As for urgent innovations that have yet to be developed, we are looking for partners in the 'golden triangle' – knowledge partners, market partners and public partners – to provide us with a broad basis for tackling issues.

Public procurement of innovation is a field that is still undergoing major development. I am proud that Rijkswaterstaat is making an important step forward with this policy framework. That being said, innovation is something we do together, so I invite you to help us in the brainstorming, development and innovation process. In this way, we will all be able to fully benefit from the potential of public procurement of innovation.

Jan Hendrik Dronkers
Director-General of Rijkswaterstaat

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Introduction

Rijkswaterstaat is faced with major challenges. The climate is changing, traffic is increasing while the infrastructure is ageing, technological advances are taking place at lightning speed and political and social pressures are high. And in the midst of this, Rijkswaterstaat has to make budget cuts. For many of these challenges, the traditional solutions are no longer sufficient. There is a need for new and innovative answers: innovations that lead to smarter, safer, cheaper and more sustainable performance. An innovation is not just a nice idea. It is about *developing* ideas and applying them in the form of products, services, processes or technologies. Rijkswaterstaat does this in consultation with the market. The present policy framework provides an outline of its approach.

Demand-driven innovation

Rijkswaterstaat's Innovation Agenda (first formulated in 2013) outlines the organisation's own innovation needs and describes 'what' these are in concrete terms. The procurement policy plays a crucial role, as it pertains to 'how' an innovation is procured – not only because Rijkswaterstaat has chosen to pursue innovation, but also because the Dutch government has charged it with a clear target: the procurement policy of all departments must help strengthen the innovative capacity – and thus the international competitive position – of the Dutch business sector. In this context, the government is focusing primarily on the top sectors and their corresponding knowledge areas. This 'enterprise policy' has a clear guiding principle: the government is giving Dutch companies room to do business, invest, innovate and export.

Best efforts obligation

To stimulate innovation, the first cabinet under Prime Minister Rutte took on the best efforts obligation to spend 2.5 percent of the procurement budget on public procurement of innovation. This naturally also applies to Rijkswaterstaat. Accordingly, with everything we purchase, we are consciously looking to develop and apply new solutions. This ultimately creates opportunities for all parties involved: companies and knowledge institutes get to provide innovations and Rijkswaterstaat gets to improve quality and performance at socially acceptable costs.

An eye for new developments

To practice an effective innovation policy, Rijkswaterstaat must keep an eye out for new, promising or inevitable developments in society. Even when there is no specific organisational need, there are numerous innovative ideas that can contribute to our objectives. Yet often these ideas do not – not yet – end up in the organisation due to an insufficient consideration of the impact, a lack of resources, regulations, policy and

existing procurement frameworks, but also due to the uncertainty that comes with innovation.

Making clear choices

Public procurement of innovation requires a different way of thinking and working: interaction with other parties, investments with an uncertain future and freedom to explore new avenues. At the same time, Rijkswaterstaat has to continue pursuing the major production target with which it is tasked – on time, with the requisite quality and within the available budget. This combination requires courage and flexibility, as well as explicit agreements and clear choices: innovation must not be an end in itself.

A guide, but not without obligation

This policy framework has been formulated as a practical tool for public procurement of innovation. Instead of being an instruction manual, it is a guiding framework with useful instruments for various situations. This is because in order to make the right choices, Rijkswaterstaat must keep an eye out for new developments in the market and the knowledge sector. Accordingly, the policy framework does not prescribe specific choices of instruments, as each specific situation calls for a customised solution. This does not mean that public procurement of innovation is free of obligation: the Innovation Agenda and programme indicate the innovation issues that are given priority.

Coordination between procurement domains

Rijkswaterstaat aims to make optimum use of the market's innovative capacity. The organisation's four procurement domains are geared to this: Civil Engineering (in Dutch known as *Grond-, Weg- en Waterbouw*, in short *GWW*), Information Services, Knowledge, and Business Management. This Public Procurement of Innovation Policy Framework applies to all four of these domains. Coordination and cooperation between the domains is thus very important. The underlying principle is that each purchase is supported by the domain in which the corresponding innovation has been developed.

Ongoing evaluation

Many instruments for public procurement of innovation are relatively new, and public commissioning parties do not have much experience with them. This also applies to Rijkswaterstaat, which is why it is important to continue evaluating how the framework is applied. After all, a lot of knowledge is still being accumulated about public procurement of innovation. For example, we have not formulated a business-IV strategy or technology policy. We often have to determine which role Rijkswaterstaat wants to play on a case-by-case basis. A prescriptive framework does not fit with this. Therefore, instead of strict



rules, this policy framework contains practical instruments that can assist in making the right choices. Many arrangements for public procurement of innovation involve cooperating with market parties and knowledge institutions. To steer this cooperation towards a win-win relationship also from a commercial standpoint, it is essential that we are familiar with each other's mutual interests and that we develop revenue models. This knowledge is not sufficiently present and must be further developed.

Reading guide

In this policy framework, we will first discuss the challenges facing Rijkswaterstaat (*chapter 1*), followed by the definition of innovation (*chapter 2*) and Rijkswaterstaat's ambitions (*chapter 3*). In *chapters 4* and *5*, we will discuss the process-based approach and how we will go about public procurement of innovation, among other subjects. The heart of the policy framework lies in *chapters 6* and *7*: the 'Decision flowchart for the public procurement of innovation market approach' and the corresponding instruments. The steps of the decision flowchart are outlined in detail in *Appendix A*. In *chapters 8* and *9* we discuss how we can deal with obstacles to innovation and deploy the means for public procurement of innovation. Lastly, *chapter 10* covers the implementation agenda and takes a look ahead to the future.

The challenges facing Rijkswaterstaat



Rijkswaterstaat manages and develops the national road network, inland waterway network and water system. In this task, we are running into new challenges that we cannot take on without innovation. These challenges include:

- climate change (heavy precipitation, lengthy droughts, rising sea levels);
- ageing infrastructure, such as bridges and locks;
- rapid and complex advances in IT;
- more intensive use of roads and waterways;
- high social demands (sustainability, safety);
- a smaller government with less money to spend.

Innovation Agenda as a guide

In 2013, Rijkswaterstaat's corporate innovation programme formulated the organisation's first Innovation Agenda, in close cooperation with partners from the business world and knowledge sectors. The agenda took its point of departure from Rijkswaterstaat's production target and social target, as formulated in the Strategic Knowledge and Innovation Agenda (SKIA) for Infrastructure and the Environment.

The Innovation Agenda keeps up with the latest developments and thus serves as a guide for Rijkswaterstaat's policy on public procurement of innovation. Based on the Innovation Agenda, Rijkswaterstaat will:

- decide where means (knowledge and money) can be deployed efficiently and effectively for innovation;
- consider how much money will be made available, and how it will be made available;
- flesh out the programme for involving the market and knowledge sectors for the sake of innovation.

Internal and external

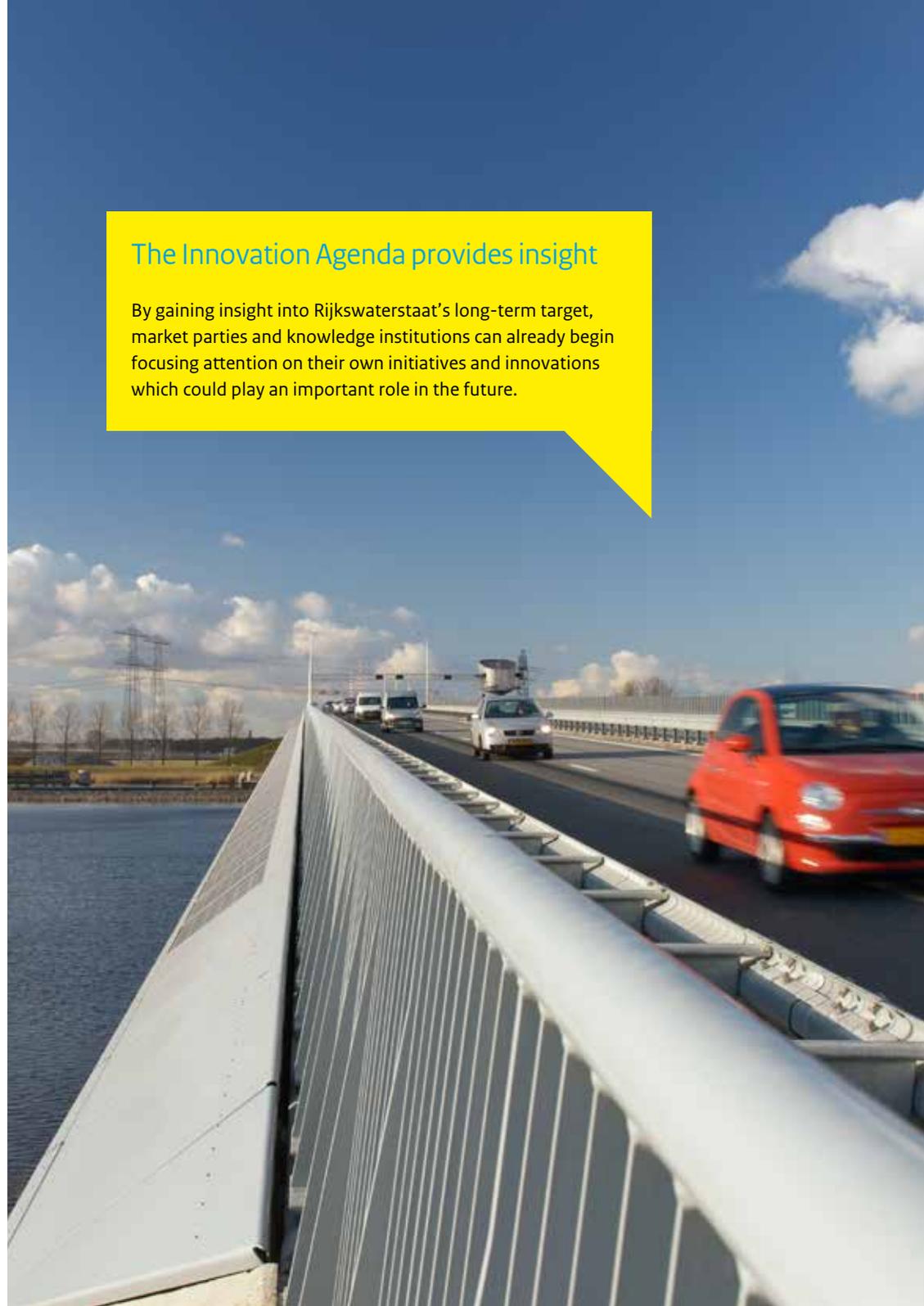
The Innovation Agenda plays an important internal role in the discussion regarding Rijkswaterstaat's future implementation target. What will the target look like in the long term, and with what amount of urgency and at what speed must solutions be found? The Innovation Agenda also has an important external function: by gaining insight into Rijkswaterstaat's long-term target, market parties and knowledge institutions can already begin focusing on their own initiatives and innovations which could play an important role in the future.

Organising innovation processes

In short, Rijkswaterstaat is faced with great challenges with respect to its production target. At the same time we will also have to properly set down the innovation processes within the organisation. We make a point of doing this in cooperation with partners from the market, knowledge sectors and other civil society organisations. Organising innovation processes calls for explicit decision-making and clear choices: when are traditional solutions sufficient and when is there room for innovation? But mainly, the Innovation Agenda calls for an open attitude – to new ideas, innovative contracts and arrangements in which promising initiatives can be developed.

The Innovation Agenda provides insight

By gaining insight into Rijkswaterstaat's long-term target, market parties and knowledge institutions can already begin focusing attention on their own initiatives and innovations which could play an important role in the future.



The definition of innovation



Innovation is a broad concept which can be defined in various ways. Rijkswaterstaat uses the definition described in the Dutch government's 'Letter to the Business Community' from 2011: To the top. The business policy in action. It defines innovation as:

The development and application of new products, technologies, processes and services.

Public procurement of innovation

In our definition, public procurement of innovation is a form of public procurement that allows for innovative solutions or actively encourages private enterprises to develop and deliver innovative products, goods, works and services.

Added value

Innovations add value to the functioning of an organisation. Innovation benefits from variety, but also ultimately from selection. For Rijkswaterstaat, innovations are successful if they can be integrated in the regular work process. For companies, innovations can also be successful if they can be introduced elsewhere in the market. Rijkswaterstaat also has a vested interest in innovations that can be applied elsewhere, as this means that the development costs will ultimately be borne by a large number of commissioning parties and users.

Incremental and radical innovations

Generally speaking, innovations are located on a spectrum between two extremes:

- **Incremental innovations:** refinements of existing technologies, products or processes that build on existing use and production methods. This type of innovation is primarily implemented in Rijkswaterstaat's regular work processes. These innovations can also include process innovations.
- **Radical innovations:** new technologies, products or processes that are based on new scientific insights. These innovations can require major adjustments, causing existing knowledge and skills to become outdated, and can bring about new opportunities (markets, products).

The development of a radical innovation is accompanied by risks, uncertainties and investments (including a considerable investment of time). The efforts and investments have to be earned back at a later point. Regular procurement (a single project or maintenance contract) is not usually suitable for this, as it does not provide the freedom (in money and time) to develop and implement an innovation and recover the invest-

ment. Parties that do not invest in a specific solution will tend to have a cheaper tender or even a better MEAT score.¹

Regular or special procurement

As a result, Rijkswaterstaat makes a distinction between two types of innovation: small-scale innovations that can be obtained through regular procurement (requesting functional specifications and awarding based on MEAT criteria) and larger, radical innovations that require a special procedure.

In both cases, conditions apply to adopting an innovation. For instance, it must first be demonstrated that the innovation (including those smaller in size) meets the set standards and requirements (such as with respect to safety). This can lead to a process of testing and validation before an innovation can be adopted. This is why Rijkswaterstaat is developing a new testing and validation strategy.

Radical innovations require a separate approach. The procurement often transpires via specific cooperation arrangements with market parties and knowledge institutions. Examples include a pre-commercial procedure, a test bed with room for pilot projects or a programme-based approach. For this kind of separate procedure, Rijkswaterstaat can free up an extra budget and personnel, share risks with partners and develop and test innovations before actually implementing them.

¹ MEAT: most economically advantageous tender (awarded based on quality and price).



Radical innovation

The development of a radical innovation is accompanied by risks, uncertainties and investments (including a considerable investment of time). The efforts and investments have to be earned back at a later point.

Rijkswaterstaat's ambitions

Rijkswaterstaat wants to adopt innovations in order to safeguard the quality of its work also in the medium term. To this end, Rijkswaterstaat's corporate innovation programme has formulated a clear ambition:

Each innovation project must ultimately contribute to the following objective with respect to the Rijkswaterstaat networks: 30 percent reduction in life-cycle costs, 30 percent more functionality, 30 percent increase in safety and sustainability.

Five operational objectives

This ambition seeks to fulfil the government's target to invest more in innovation, on the one hand, while contributing to the international competitive position of the Dutch business sector, on the other. To flesh out this ambition, Rijkswaterstaat has formulated five operational objectives:

- 1 Seriously positioning the Innovation Agenda as part of the production target*
Rijkswaterstaat will implement at least ten new and visible innovations each year in projects within the primary process. These innovations must meet the basic criteria of providing added social value and reducing costs, while fitting with the target set by the government.
- 2 Making optimum use of national and international knowledge development*
Even when there is no specific organisational demand, there are innovative ideas being developed both at home and abroad that can contribute to our objectives. To make optimum use of these innovations, an open attitude is needed, with types of contracts and arrangements that offer room for this. Therefore, in 2014, Rijkswaterstaat will take concrete steps to conduct targeted market explorations and provide a new boost to the industry initiatives contact desk.
- 3 Designing a process to periodically select promising initiatives*
In 2014, a selection process will be developed for promising initiatives from both within and outside Rijkswaterstaat. This pertains specifically to initiatives that deal with issues in which Rijkswaterstaat aims to play a stimulating or initiating role.
- 4 Developing public procurement of innovation into a fully-fledged part of the market and procurement policy*
Rijkswaterstaat wants to make optimum use of the knowledge and creativity available on the market. It must therefore capitalise more on the innovative capacity and revenue models of market parties and knowledge institutions. To encourage this process, Rijkswaterstaat's procurement strategy is being expanded by means of this Public

Procurement of Innovation Policy Framework.

- 5 *Eliminating a number of obstacles in 2014 and 2015*
Many promising innovations get bogged down in regulations, uncertainty or other stumbling blocks. Rijkswaterstaat aims to deal with obstacles that impede the procurement of innovation. This begins with two concrete steps:
- developing a generic process model for innovation in large-scale programmes and projects in 2014, and applying this model in one implementation programme and one implementation project;
 - eliminating at least three internal obstacles in 2014 and 2015.

Ambition

Each innovation project must ultimately contribute to the following objective with respect to the Rijkswaterstaat networks: 30 percent reduction in life-cycle costs, 30 percent more functionality, 30 percent increase in safety and sustainability.



Process-based approach to procuring innovations



Public procurement of innovation calls for a process-based approach in which one attempts to arrive at a solution – and ultimately its implementation – by means of an exploration of a problem or target.

Roughly speaking, an innovation process goes through the following phases:

- 1 long-term exploration, Innovation Agenda;
- 2 selection of urgent or promising topics;
- 3 programming;
- 4 procurement plan / market approach;
- 5 pre-commercial phase, prototypes, pilot projects;
- 6 testing and validation;
- 7 implementation;
- 8 monitoring, evaluation and possible adjustment of programme.

Innovation need as an input for programming

The first two steps serve to put the innovation need on the agenda. Based on a broad exploration (both within and outside Rijkswaterstaat) of potential targets (social, technical or otherwise), an innovation need is formulated which contains the most pressing issues.

The innovation need serves as input for the programming, with the use of resources for innovation weighed up against the use of resources for regular production. How much Rijkswaterstaat uses for innovation is a choice: when are traditional solutions sufficient and when is there room for innovation? By making this choice on a case-by-case basis, maximum efficiency can be maintained in the allotment of resources and room remains to look for innovative solutions. *Figure 4.1* illustrates this process.

The next phase: market exploration

Once the innovation need has been set down in the form of a concrete Innovation Agenda in the programming, the exploration phase can commence. This begins with two essential questions. The first is a formulation of Rijkswaterstaat's need: what is the problem and what are we looking for? This is followed by the second question: to what extent are innovative solutions for this need already available on the market? If such solutions are indeed available, they can be obtained via the regular procurement process.

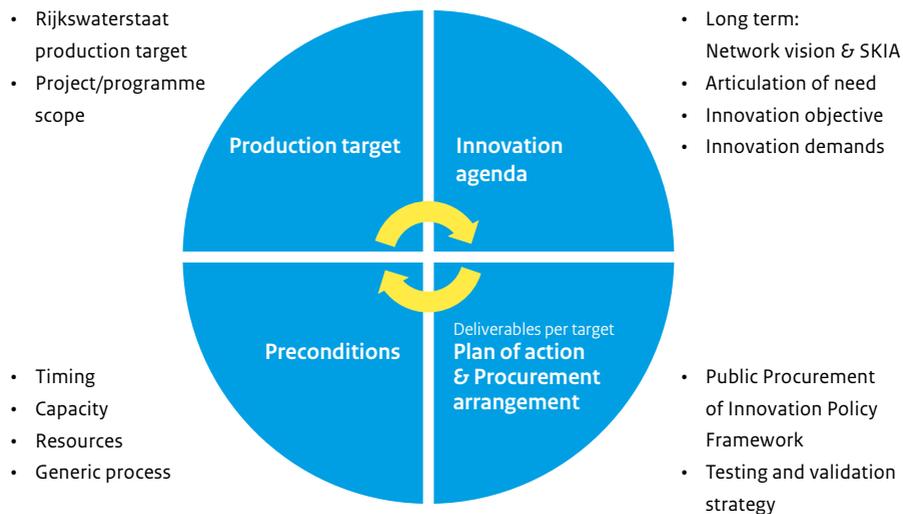


Figure 4.1 The process of public procurement of innovation

Looking for new partners

During the exploration phase, it also becomes clear which partners can help Rijkswaterstaat in the innovation process. These partners are often knowledge institutions and market parties, but they can also include individual scientists or citizens. It can be worthwhile to venture off the beaten path and specifically focus on finding less traditional partners. New partners often bring with them refreshing new perspectives, and have the capacity to shake up existing relationships. In this respect, it is best to not choose a partner too quickly. A procedure that requires partners to prove themselves in competition can lead to solutions that can also provide a competitive edge at the international level.

Results of the market exploration

The market analysis can have four different outcomes. We will discuss these outcomes below (see also Appendix A).

- *An innovative solution is available on the national or international market*
Rijkswaterstaat puts the original need on the market in the form of a regular call for tenders. The functional request and the tender criteria provide explicit room for the innovation that emerged from the market exploration.

- *An innovative solution is not yet available on the market, but the knowledge and expertise to develop it do exist*
If there is a sufficient need for the particular solution, it can still be worked out. Rijkswaterstaat would then be able to benefit from the (demand-driven) innovation without having to participate in the innovation process itself (except in the testing and validation phase).
- *No innovative solution is available and there is no expertise to develop it within a reasonable time frame*
Rijkswaterstaat shifts to demand-driven innovation and participates in the innovation process (e.g. by providing financial support, testing and validating), possibly in cooperation with other partners. Rijkswaterstaat will also aim to involve other commissioning parties. It is preferable to develop innovative solutions together, with Rijkswaterstaat performing a stimulating or coordinating role.
- *There is sufficient knowledge and expertise, but insufficient demand to develop it into an innovation*
In this case, Rijkswaterstaat can take two courses of action. The first runs directly via procurement, with Rijkswaterstaat acting as the ‘launch customer’ and preferably in cooperation with other parties. The second course of action is financing: setting up an innovation fund can lower the investment threshold and allow for sharing of future revenues (see section 9.3).
- *There is insufficient knowledge and/or expertise to realise the innovation required by Rijkswaterstaat*
In this case, Rijkswaterstaat must consider taking the initiative and, if it does so, determine which (knowledge) investment is efficient.

Organisational set-up

Successful market exploration calls for a proper organisational set-up. Rijkswaterstaat developed a targeted approach for this in 2014. To get a good idea of the available solutions, Rijkswaterstaat will be enhancing its knowledge of innovations. This requires close cooperation between all the employees, departments and other parties involved. In addition, Rijkswaterstaat is developing a new testing and validation strategy in order to effectively and efficiently evaluate which innovations can be incorporated into the primary process.

Information services

Many innovations are based on developments in technology, IT and data use. Rijkswaterstaat’s architecture for information services must be geared to this. For example, new technologies must be able to efficiently connect with existing systems (such as roadside systems that communicate with traffic centres). To that end, Rijkswaterstaat is



Testing and validation

Rijkswaterstaat is developing a new testing and validation strategy in order to effectively and efficiently evaluate which innovations can be incorporated into the primary process.

working on a clearly formulated technology policy and new strategies for information services. Issues include the use of standards and the life span of systems (software or otherwise). The architecture provides a framework which facilitates innovations, and is meant to reflect the ambitions for the contribution of information services to Rijkswaterstaat's social performance. Among other things, this is achieved by:

- ensuring that standards are used and suitable building blocks are reused;
- avoiding dependency on a single supplier.

Specific findings from explorations of information services:

- The life span of systems and software is often much shorter than in the civil engineering sector.
- Rijkswaterstaat is a much smaller player in the information services sector than in civil engineering.

For the explorations into bringing in third parties, the following aspects play an important role:

- contribution to an envisioned (future) 'enterprise architecture';
- interoperability with existing systems is a key condition;
- contribution to the improvement of functionality and increase of cost efficiency.

The exploration of sourcing options generates input for the further development (or innovation) of the architecture. In this way, exploration is an iterative process.

Working together with other parties

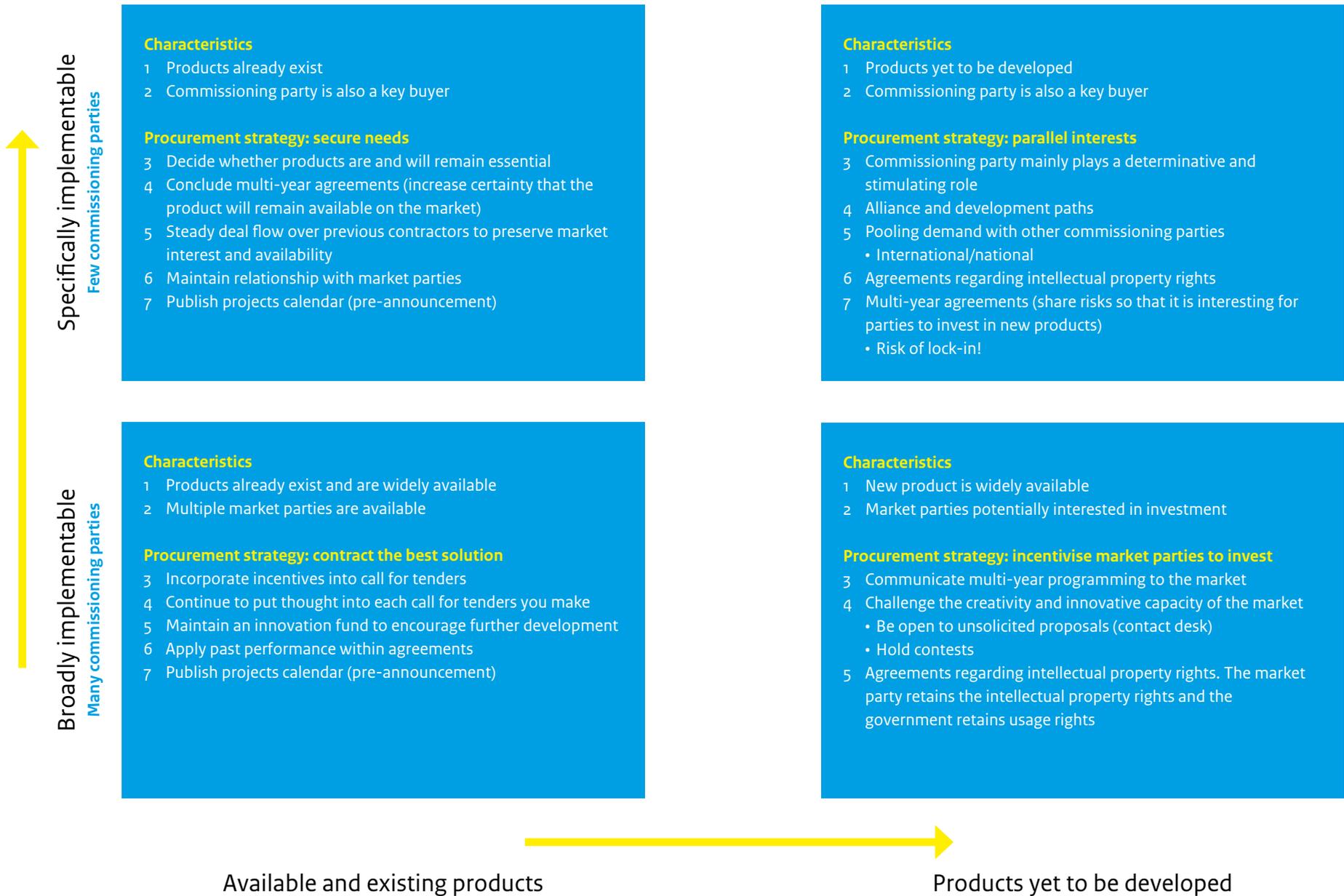
The market exploration is followed by a number of key questions. Does Rijkswaterstaat purchase an innovative solution because there is sufficient market supply, or does Rijkswaterstaat need a unique innovation? Is it a one-time solution or does the innovation have to be implemented later on a large scale? Which parties are involved? And where in the innovation process can Rijkswaterstaat best put its involvement into practice: during idea development, prototype development, pilot projects, testing or the commercial introduction?

Basic principles for cooperation

In every innovation process, Rijkswaterstaat works together with other parties.

Figure 5.1 on the next page shows which processes play a role in choosing to enter into a collaborative relationship. We employ the following basic principles for this:

- Most innovations are not developed by Rijkswaterstaat itself. Rijkswaterstaat's main focus is to create a favourable environment and an organisation that is capable of putting innovations to good use. This calls for an open, flexible attitude to innovation solutions that can also be implemented at Rijkswaterstaat.
- Rijkswaterstaat does not develop innovations itself without the involvement of other parties. Rijkswaterstaat may be the initiator, but it always works in partnership with other commissioning parties, market parties or knowledge institutions.
- If Rijkswaterstaat is the initiating party, it will primarily assume a stimulating role. Only in very specific or urgent cases can Rijkswaterstaat assume a coordinating role.
- In innovation processes, Rijkswaterstaat encourages competition between parties for as long as possible prior to selecting one particular solution.
- Competition during the development process leads to more added value for society and a stronger market sector.
- In the case of developed innovations, Rijkswaterstaat does not want to be dependent on a single supplier.



Decision flowchart for the public procurement of innovation market approach

6

To encourage innovation among market parties, it is important that Rijkswaterstaat provides room for this in contracts and legal frameworks. Rijkswaterstaat must also provide facilities for testing and validating innovations. This requires both the commissioning party and the contractor to pay more attention to the opportunities provided by innovative solutions. Rijkswaterstaat should therefore already begin thinking about the potential role for the market in the early stages of projects and programmes.

Choosing the proper market approach

The decision scheme in *Figure 6.1* on the next page will help project managers and purchasers in choosing the proper market approach. Each phase of the process consists of different steps. These steps are described in greater detail in *Appendix A*.

Decision flowchart for the public procurement of innovation market approach

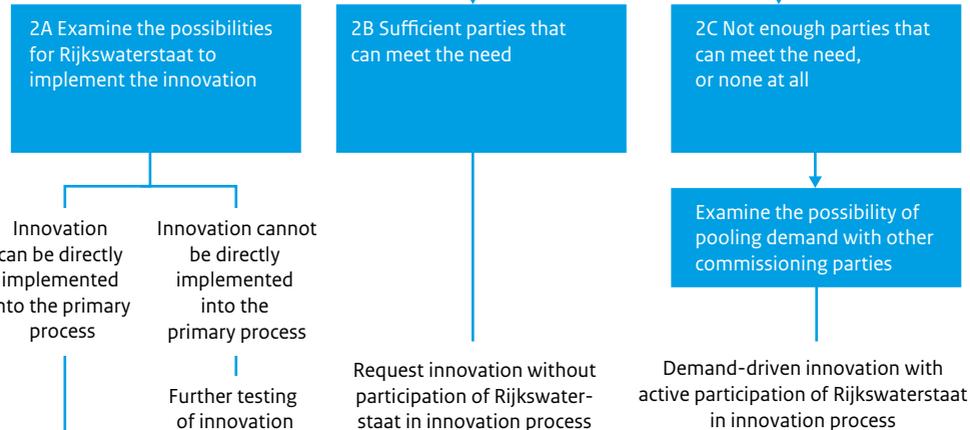
Phase 1: Definition phase



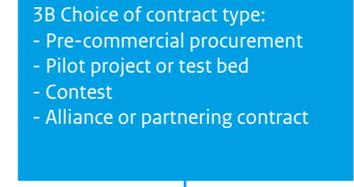
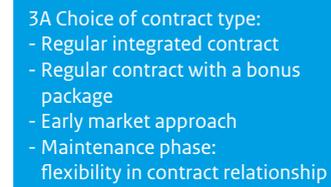
Phase 2: Research phase

Existing innovations found

No existing innovations found



Phase 3: Procurement phase



Phase 4: Implementation phase



Phase 5: Evaluation and monitoring



Instruments for public procurement of innovation

The previous chapter contained the decision flowchart for choosing the proper market approach in public procurement of innovation. In this chapter, we will discuss the instruments that play a role in the procurement itself. We will first look at arrangements for a request that is specifically geared to innovations (*section 7.1*). *Section 7.2* then deals with contract types pertaining to innovation in Rijkswaterstaat's primary process. Lastly, in *section 7.3*, we will look at a few other types of contracts.

Procurement and the Public Procurement Act

All of Rijkswaterstaat's purchases fall under the Aanbestedingswet (Dutch Public Procurement Act 2012). This naturally also applies to public procurement of innovation. It is important to make a timely decision about how the tendering fits into the innovation process. In the case of initiatives from the market, it is also important to know whether intellectual property is involved (see *chapter 8*). It can also be useful to issue a broader request soon to see whether other parties have also developed ideas which can then compete.

Research & Development

Innovation benefits from cooperation and interoperability between innovations. Multiple calls for tenders help in this regard. Research & Development cannot just be awarded privately. R&D contracts that exceed EUR 200,000 in value must be tendered at the European level. Exceptions to this include European cooperation, co-financing and the payment for knowledge without using it (and transferring the ownership of this knowledge).

7.1 Arrangements for a specific request geared to innovations

For a specific innovation-oriented request, various instruments are available: pre-commercial procurement, cooperation in pilot projects, contests and alliances.

Pre-commercial procurement

Pre-commercial procurement is a preparatory stage during which the risks associated with an innovative solution can be eliminated before the commissioning party actually purchases and commercially applies that solution. It is important to clearly define the start and end of the pre-commercial procurement phase, with ample thought given to the transition from the pre-commercial phase to the commercial phase. It is also important to ensure an open and level playing field so that all interested companies will have the

opportunity to participate. Key development points are:

- How can Rijkswaterstaat introduce the right incentives to ensure that companies will genuinely invest in joint knowledge development?
- How can Rijkswaterstaat keep participating parties focused as long as possible on achieving the optimum commercial solution?
- To what extent is Rijkswaterstaat itself willing to make investments and take development risks?
- How can Rijkswaterstaat ensure a smooth transition to a commercial phase which allows other parties to enter the same market and prevents lock-in (i.e. Rijkswaterstaat becoming dependent on the parties with which the knowledge has been developed)?

The field of pre-commercial procurement is still very much in development, and new variations continue to emerge (e.g. ‘forward commitment procurement’, which is geared to encouraging sustainable solutions). Pre-commercial procurement (PCP, see *Appendix D*) is the best known form of pre-commercial purchasing.

Cooperating in pilot projects and test beds

A potential innovation can be tested in a pilot project or – if several innovations are involved – on test beds. Market parties are given the space to carry out the pilot together with Rijkswaterstaat. This might involve providing testing and monitoring facilities or test plots for a new type of asphalt. Rijkswaterstaat is developing a new testing and validation strategy in order to effectively and efficiently evaluate which innovations can be incorporated into the primary process. The pilot or test bed can be incorporated into various types of contract.

Contests

Contests challenge market parties to come up with a solution to a problem, with the best solution ultimately being implemented in a project. In this way, the contest comes very close to the primary process. A successful contest requires good planning regarding the path to ultimate implementation. Things to take into consideration are procurement law requirements and dealing with intellectual property among the participants.

Alliances

Alliances make it possible to lead joint projects involving major uncertainties. These include projects for which it is difficult to determine in advance who should bear which risks. For Rijkswaterstaat, alliances with market and knowledge parties may be suitable for developing or stimulating innovations. In contrast to pre-commercial procurement, alliances can also be employed during the commercial phase.



Pilot projects

A potential innovation can be tested in a pilot project or – if several innovations are involved – in test beds. Market parties are given the space to carry out the pilot together with Rijkswaterstaat.

7.2 Contract types for the stimulation of innovation in Rijkswaterstaat’s primary process

Different types of contracts can be used for innovation in Rijkswaterstaat’s primary process. In this section, we will discuss a number of these arrangements and instruments.

Regular procurement via integrated contracts

For regular calls for tenders in the civil engineering sector, Rijkswaterstaat works with integrated contracts. In these, the commissioning party is responsible for multiple phases of the design, construction and maintenance process. By making functional demands rather than requesting technical specifications, the tenderer is given the room to apply its own solutions. As the commissioning party, in the request Rijkswaterstaat should clearly describe the added value that it expects tenderers to provide. A tried and tested method for this is selecting the most economically advantageous tender (MEAT). This means that Rijkswaterstaat selects tenders based on a combination of price and quality.

Bonus packages

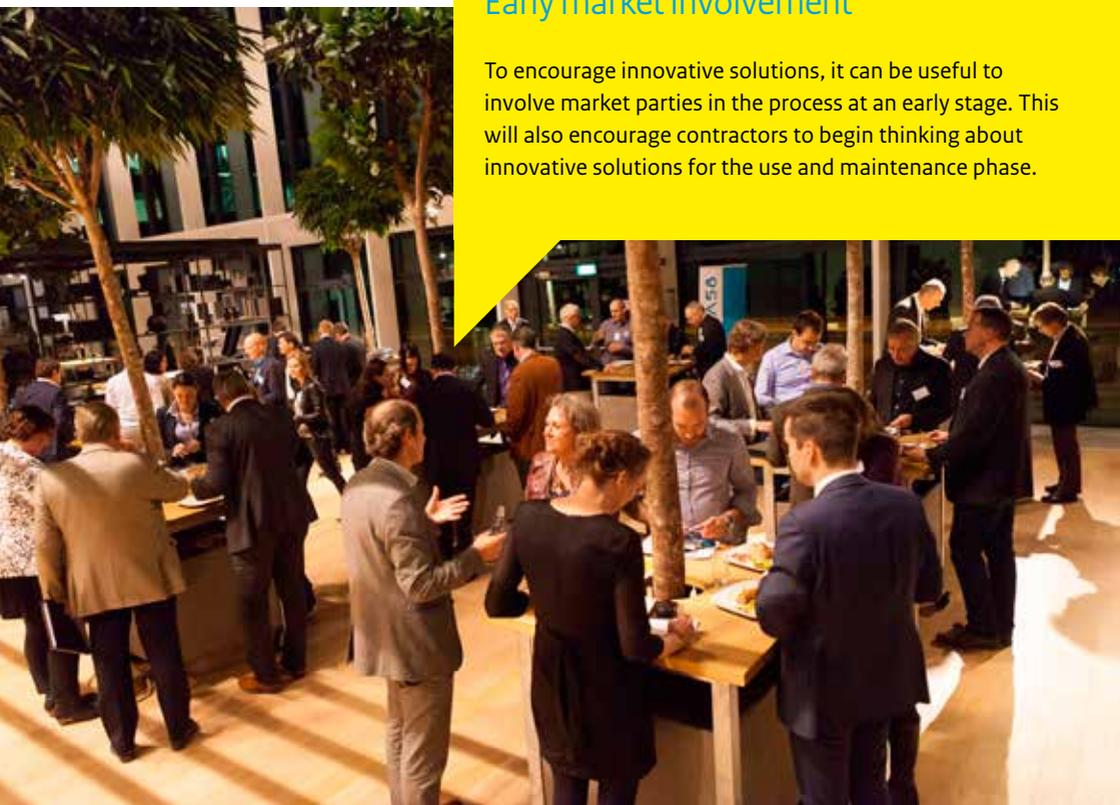
A bonus package consists of a regular contract augmented by an additional offer in exchange for a bonus. The commissioning party announces these packages in advance in terms of a maximum monetary value. Tenderers can then decide whether they want to submit a tender for the bonus package. A variation of this is an options package.

Early market involvement

To encourage innovative solutions, it can be useful to involve market parties at an early stage in the process. This will also encourage contractors to begin thinking about innovative solutions for the use and maintenance phase. In this way, early market involvement is an effective instrument not only in the civil engineering sector, but also with respect to solutions for IT and information facilities. In civil engineering, interdependence provides opportunities because the spatial procedure and the tendering procedure are running simultaneously from the beginning of the process.

Early market involvement

To encourage innovative solutions, it can be useful to involve market parties in the process at an early stage. This will also encourage contractors to begin thinking about innovative solutions for the use and maintenance phase.



Flexibility in contract relationship: room for a win-win situation

Rijkswaterstaat welcomes proposals for improvement from market parties after the contract has been awarded – after all, there can be a lot of time between the selection and the actual implementation. Long-term maintenance contracts also offer the possibility of making interim improvements. Naturally, the innovations must continue to be tested for cost-effectiveness based on life cycle costing (win-win situation).

Smart exit and modernisation clauses for contracts

When deciding on the duration of contracts, Rijkswaterstaat takes into account developments in the corresponding environment, technology and market. The dynamics in the area of information systems are particularly large. New innovations can even render existing solutions redundant. This is why it is important to include sound exit or modernisation clauses. With respect to long-term DBFM contracts (Design, Build, Finance & Maintain), for example, Rijkswaterstaat takes into account the functional life span of information services components to reflect the short cyclical nature of the information services systems. A coherent policy has not yet been formulated for this, but it is best to ensure that Rijkswaterstaat is not tied down to an ongoing contract for longer than is necessary. Another solution for dealing with dynamics is the use of ‘parcels in stages’. Rijkswaterstaat can deploy this solution to limit supply chain risks. The issuing of multiple parcels also means that multiple solutions can be developed. This can be particularly advantageous in markets with a heavy development component. An example of this is the route planner for inland waterway traffic management, which has a research, design and development phase. In these successive phases, the overall specifications are drawn up and translated into a ‘proof of concept’ and a prototype, and experiments are conducted with the prototypes developed. After this process, a final selection is made.

7.3 Other contract types

To conclude this chapter, we will discuss a few other types of contract: the market initiative scheme and Rijkswaterstaat as lead customer.

Market initiative scheme: unsolicited proposals

Even when there is no specific demand from within the organisation, there are innovative ideas being developed in the Dutch and international markets that can contribute to the needs of Rijkswaterstaat. To make optimum use of these innovations, we will be giving a new boost to the scheme and the Rijkswaterstaat contact desk for initiatives from the market. Rijkswaterstaat is working on a variant of the early market approach which

provides more room for initiatives submitted by market parties. This gives those parties the opportunity to submit proposals, together with a business plan, very early in the planning process. The best proposals may then be incorporated into the planning process.

Rijkswaterstaat as lead customer (see also Appendix B)

In addition to its own innovation needs, Rijkswaterstaat is open to being approached by market parties, other public authorities and knowledge institutions. In these cases, Rijkswaterstaat takes on the role of lead customer to participate in a project or carry it out by itself. In doing so, Rijkswaterstaat adheres to the following basic principles:

- The invention² / the prototype or innovation provides a potential solution to a Rijkswaterstaat challenge.
- The invention / the prototype or innovation does not provide a solution to a Rijkswaterstaat challenge, but it also does not pose an obstacle when it is implemented. By lending assistance, the innovation can help other public authorities that do not have the necessary capacity or resources. The costs of this experimental space must be reimbursed by the applicants.

Developing fields

Fields that are undergoing substantial development often present attractive opportunities that Rijkswaterstaat does not put to full use. An example is the field of information services. Rijkswaterstaat welcomes ideas for taking a different approach to working with new technologies so as to improve the work process. For example, suppliers can provide ideas about how we can move closer to the ideal of having information services as a 'fourth network'. This means that instead of information services consisting of unconnected components, it consists of components that add up to subsystems and ultimately the main information system, connecting Rijkswaterstaat at a time in which it wants to work as a single organisation, together with others.

It remains important to continue exploring to what extent it is possible to work with other commissioning parties or which revenue model can be developed for market parties or financiers so that the costs of development are not fully borne by Rijkswaterstaat and/or can be earned back in full or in part in the long term.

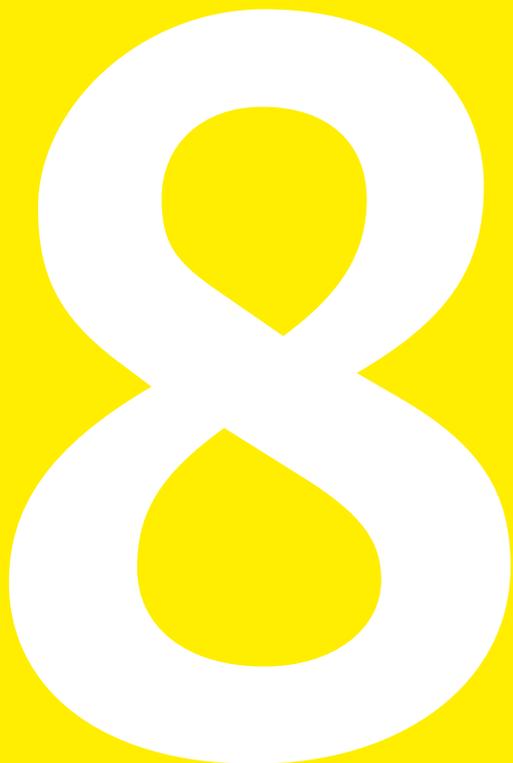


Fourth network

Rijkswaterstaat welcomes ideas for a different approach to working with new technologies so as to improve the work process. For example, suppliers can provide ideas about how we can move closer to the ideal of having information services as a 'fourth network'.

² Invention or discovery

Removing obstacles



Many innovations get bogged down in regulations, a lack of resources or other obstacles. In order to conduct an effective public procurement of innovation policy, these stumbling blocks must be eliminated wherever possible. The obstacles are often internal and related to Rijkswaterstaat's organisational culture. Our ambition is to eliminate at least three of these internal obstacles in 2014 and 2015.

Legal obstacles (culture and procedures)

Though Rijkswaterstaat primarily includes functional specifications in its calls for tenders, there are often standards, frameworks and guidelines that limit the room for innovation. These may be specific Rijkswaterstaat regulations or national or European standards. These kinds of legal obstacles play a role not only in the implementation phase, but also in the policy phase in which the political task is set.

Financing: dividing interests by dividing budgets

Financing is often an obstacle to the actual development and implementation of innovations. The budgeting system often makes it difficult to find resources for the initial investments. Divided budgets and the distinction made between construction costs and maintenance do not serve to facilitate the introduction of innovations. In addition, there is often a lack of insight into the life cycle of innovations. Solutions in the area of sustainability can lead to significant savings, for instance, yet they often get bogged down in the budget division between construction and maintenance.

Intellectual property

If market parties tender an innovation, Rijkswaterstaat must thoroughly investigate who owns the associated intellectual property rights. Traditionally speaking, Rijkswaterstaat claims the intellectual property rights, which takes the incentive away from the market party to further develop the innovation. Rijkswaterstaat intends to remove this obstacle in the short term. Instead of claiming the intellectual property rights, an alternative would be to acquire a user licence which includes maintenance or a licence for the repeated use of an innovative solution. See also *Appendix C*.

Commissioning party: receptive to ideas from external parties

The commissioning party's own organisation can sometimes be a major obstacle. As a commissioning party, Rijkswaterstaat should be more receptive to promising ideas from external parties which could also be implemented within Rijkswaterstaat. This issue always raises various questions. Is Rijkswaterstaat capable of properly attuning the innovation need to the production target? When should we take the lead to encourage other parties, and when should Rijkswaterstaat assume the coordinating role itself?

Risk-avoidance: dealing with risks

Uncertainty often poses a major obstacle to innovations. Accordingly, dealing with risks is an important condition for successful public procurement of innovation. How Rijkswaterstaat deals with risks, also after trials and tests, will be worked out in further detail in consultation with the Ministry of Economic Affairs (for example as part of the 'Urgent Innovation Procurement' programme). In certain situations, for instance, it is conceivable that Rijkswaterstaat would rely on guarantee schemes and risk funds.

Experimental space

Many innovations do not get off the ground due to a lack of experimental space for test beds and testing, despite the fact that this space is often essential for demonstrating the added value of innovations. For this reason, Rijkswaterstaat is working on a new test vision which lays down the conditions for experimental space, pilot projects and test beds.

Intellectual property

Traditionally speaking, Rijkswaterstaat claims the intellectual property rights, which takes the incentive away from the market party to further develop the innovation. Rijkswaterstaat intends to remove this obstacle in the short term.



Funding and financing innovations



In principle, innovations should ultimately pay for themselves. Each innovation initially requires an investment, but it should eventually provide added social value: a better product for less money. However, since this outcome cannot be predicted for each innovation, management leadership and choices are necessary: leadership to exude confidence in the power of innovations and to create space for them – even when efforts do not meet with immediate success; choices to determine which resources within the regular production should be freed up to be used for innovation; and choices to determine how Rijkswaterstaat will meet its best effort obligation of spending 2.5 percent of its total procurement budget on innovation.

9.1 Funding

Rijkswaterstaat can bankroll innovations in two ways. It can do so first of all by including them in the regular production budget. It is Rijkswaterstaat policy to encourage the creativity of market parties by issuing a request in the form of functional specifications and making a selection based on price and quality. This can produce clever solutions, process innovations or technical advances. It is difficult to measure the financial scope of these innovations. In long-term contracts (DBFM contracts, service provision agreements or construction contracts), it is also possible to make agreements with the contractor regarding the use of innovations within the contract parameters. In this case it is possible to monitor which resources in the contract are used for innovation.

A second way of financing innovations is by setting aside a portion of the funds, which can then be deployed – in cooperation with other parties – to launch or encourage innovations. This is possible during different phases of the innovation process, such as by means of an assignment, a pre-commercial path, a pilot project or a contest.

9.2 Forms of financing

The funds for procuring innovation usually come from the regular budget. Rijkswaterstaat may be confronted with innovations that call for a greater investment, but which in the long term could result in major savings (e.g. the implementation of new IT or savings on management and maintenance).

Just like other public procurers, Rijkswaterstaat is obliged to spend 2.5 percent of its procurement budget on innovation (see also *section 9.4*). For Rijkswaterstaat, this is roughly EUR 100 million. The extent to which this amount is spent through regular procurement or separate avenues depends on the innovation need and a thorough consideration of the most suitable approach. There is also the possibility of relying on funds and financial instruments from other public authorities³, but these fall outside the scope of the best efforts obligation of 2.5 percent.

9.3 Rijkswaterstaat innovation fund

Rijkswaterstaat is exploring the possibility of setting up a special innovation fund. This fund would be established by public and private parties which make joint investments in potential innovations. These parties could include businesses, financial institutions, knowledge institutions and government bodies. As an investor, the innovation fund would share in not only the risks of a project, but also its potential benefits. The innovation fund is intended to be a revolving fund. The goal would be for the fund to earn back its investments in the long term. Investment would take place in accordance with clear standards and assessment criteria. If a project satisfies the standards set by the fund, it would receive financing under favourable conditions.

9.4 Measuring the best efforts obligation

To encourage innovation, the Dutch government expects each department to spend 2.5 percent of its total procurement budget on innovation. There are two ways to measure whether an organisation has met this best efforts obligation. The first is a qualitative measurement: the organisation's own performance in the area of public procurement of innovation is scored based on qualitative indicators, such as the extent of satisfying innovation needs or eliminating obstacles. Rijkswaterstaat, however, prefers the second method: a quantitative measurement. This means formulating a definition and assessment basis and then taking a baseline measurement (to be repeated each year thereafter). To come up with a good quantitative measuring method, Rijkswaterstaat wants to look at private sector experiences with measuring innovation efforts.

³ Examples of which include the Small Business Innovation Research programme (SBIR), innovation funds for small and medium-sized enterprises and EU innovation funds.



Best efforts obligation

To encourage innovation, the Dutch government expects each department to spend 2.5 percent of its total procurement budget on innovation. Rijkswaterstaat intends to perform a quantitative measurement to determine whether it has met its best efforts obligation. To come up with a good quantitative measuring method, Rijkswaterstaat wants to look at private sector experiences with measuring innovation efforts.

Organisation and development

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The point of departure for public procurement of innovation is an administrative choice for innovations and the incorporation of these innovations into the organisational programme. Three aspects of this are important to Rijkswaterstaat:

- the Innovation Agenda and the actions resulting from it;
- the substantive choice and the role of Rijkswaterstaat;
- innovation as part of its regular programming.

The Innovation Agenda

Rijkswaterstaat's Innovation Agenda is the result of collaboration between Rijkswaterstaat, knowledge institutions and market parties, which have jointly listed the innovation needs for the coming years. Some of these needs must be met in the short term, while others pertain to long-term projects such as the MultiWaterWerk programme, which focuses on modernising locks between 2020 and 2050.

The role of Rijkswaterstaat

The Innovation Agenda itself does not provide an answer to the question of which role Rijkswaterstaat should play in the innovation process. This role will differ for each situation and will have to be reconsidered for each innovation. Broadly speaking, there are three options:

- Rijkswaterstaat takes the lead;
- Rijkswaterstaat stimulates market and knowledge parties;
- Rijkswaterstaat leaves it completely up to the market.

This sheds light on the need for capacity and resources for public procurement of innovation. The organisation must also continue to keep an eye out for new ideas beyond its own innovation needs: we will constantly be presented with new ideas that potentially bring added value to Rijkswaterstaat. These ideas should be subjected to a careful assessment based on the Innovation Agenda. This is another reason why it is important to periodically update the Innovation Agenda.

Integration into the programme

The next step is to incorporate the innovation into the organisational programme. For Rijkswaterstaat, this is a relatively new, yet necessary development. Unnecessary waste will occur if innovation is not incorporated into the programming, especially in the face of a scarcity of resources and an extensive Innovation Agenda. At the same time, Rijkswaterstaat has to continue pursuing the production target with which it is tasked. A clear choice will have to be made: when are traditional solutions sufficient and when should we free up resources for innovation?

Monitoring and evaluation

Rijkswaterstaat will continue to closely monitor its own innovation process. This starts during the implementation of the various measures. After innovation projects have been selected, we can use T-reports, for instance, to keep track of the progress made and the agreed milestones. Once every two years, we also measure to what extent the innovation efforts have actually been incorporated into the primary process. Lastly, concrete agreements must also be monitored. In the corporate innovation programme, for example, an objective of ten innovations per year has been agreed upon.

In addition, Rijkswaterstaat regularly evaluates the progress of public procurement of innovation. Recurring evaluations concern:

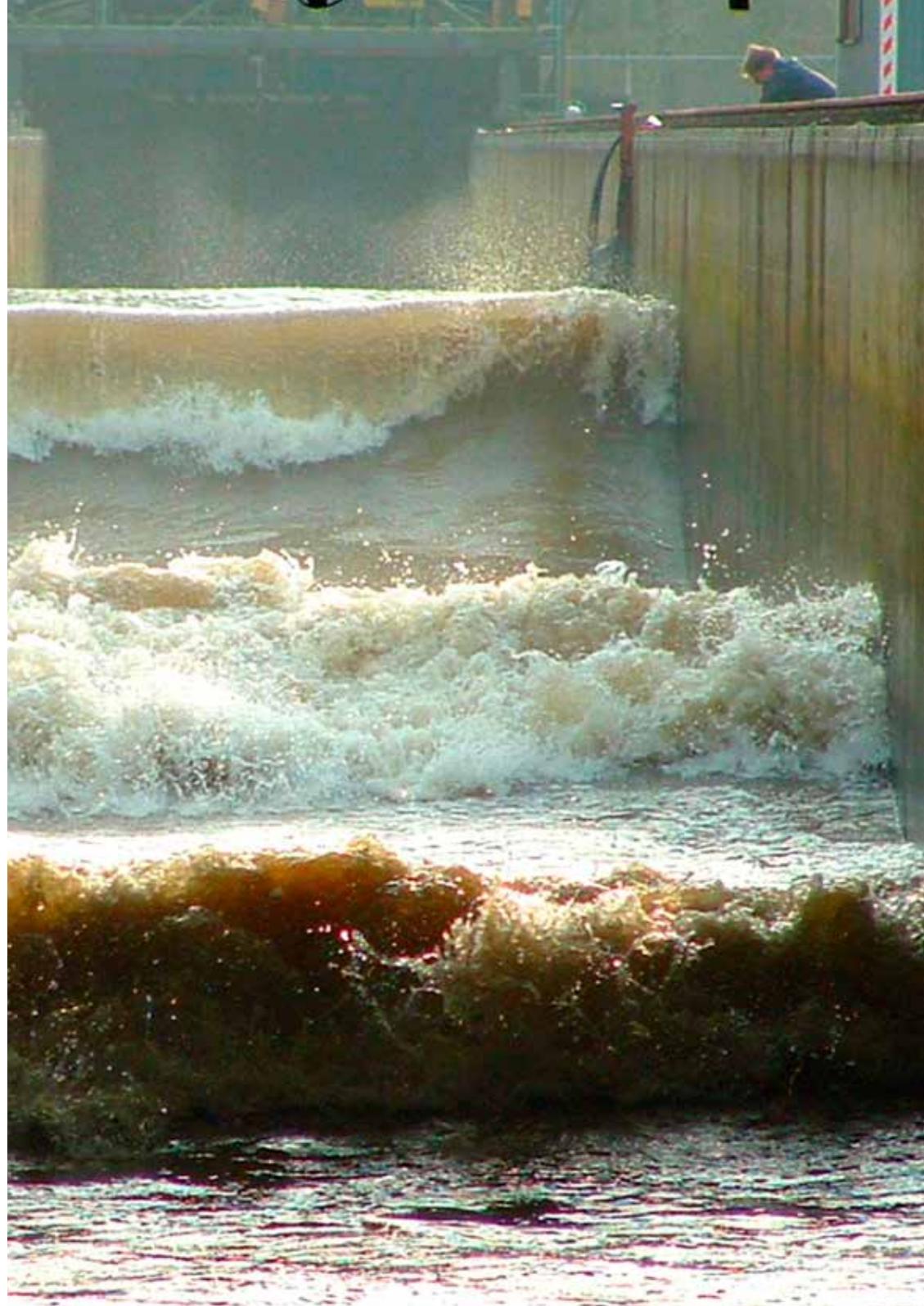
- feedback to the Ministry of Economic Affairs on behalf of the study into public procurement of innovation in all government departments;
- the extent to which Rijkswaterstaat explores the possibility of incorporating room for innovation into contracts;
- the extent to which Rijkswaterstaat succeeds in eliminating obstacles to the procurement of innovation;
- the effectiveness and application of this policy framework (and the instruments contained in it);
- the human and financial resources that are spent on the procurement of innovation.

Training and culture

Public procurement of innovation is carried out by people. As such, Rijkswaterstaat will continue to develop its organisation through specific training programmes which devote particular attention to Rijkswaterstaat's role as a commissioning party and project manager in innovation-oriented projects, and to the role of procurement officers and contract managers. These programmes also devote attention to the balance between risk management and opportunity management.

Innovation Agenda

Rijkswaterstaat's Innovation Agenda is the result of collaboration between Rijkswaterstaat, knowledge institutions and market parties, which have jointly listed the innovation needs for the coming years.



Appendices

Appendix A

Decision flowchart for the Public procurement of innovation Market Approach

Appendix B

Rijkswaterstaat as lead customer

Appendix C

Intellectual property

Appendix D

Pre-commercial procurement

Appendix A: Decision flowchart for the Public procurement of innovation Market Approach

To encourage innovation among market parties, it is important that Rijkswaterstaat provides room for innovation in contracts and legal frameworks. Rijkswaterstaat must therefore already start thinking at an early stage about the potential role of the market. The Decision flowchart for the Public procurement of innovation Market Approach (enclosed separately, see also chapter 6) helps project managers and procurement officers choose the proper market approach.

Phase 1: Definition phase

The definition phase is the first phase of the process. During this phase, Rijkswaterstaat further specifies its own need and conducts an analysis of whether innovations are available based on this need.

Step 1A: Formulating the innovation need

Describe the problem and the corresponding innovation need as clearly as possible. If already possible, indicate the phase of an innovation track (research, invention, designing and prototyping) in which the call for tenders will be made. If Rijkswaterstaat itself already has an innovative problem-solving approach (invention), describe this as best as possible. Set preconditions within which the solution must function, but also take into account such aspects as completion time and budget. If already possible during this phase, formulate an objective (in terms of functionality, flow, safety or costs) based on which the innovation can be evaluated.

Step 1B: Market analysis of innovations

The second step is a market exploration of existing innovations in the Netherlands and abroad which provide a potential solution to Rijkswaterstaat's problem. This may include innovations from Rijkswaterstaat's own domain as well as from other sectors in the Netherlands and abroad. The market analysis can yield four outcomes which will be discussed in the next phase.

Phase 2: Research phase

At the beginning of the research phase, there is an idea of whether innovations are available. The results of the market analysis are available. The market analysis can yield four outcomes which we will discuss below.

Step 2A: Existing innovations are found.

One or more innovative solutions are present on the national or international market. Rijkswaterstaat investigates to what extent these innovations can provide a sufficient answer to a need at Rijkswaterstaat. If they do, the need is put on the market in the form of a regular tender. In formulating the functional specification request and determining the award criteria, explicit room is provided for bringing in the solutions found.

In the further investigation of the implementability, the following issues require attention:

- If an innovation comes from abroad, investigate whether the innovator is interested in also implementing the innovation in the Netherlands (itself, or through a licence).
- If so, what are the potential legal obstacles that have to be overcome in this process (including procurement law requirements⁴)?
- If not, investigate whether it is possible to acquire a licence (and at what cost) to implement the innovation here, and survey Dutch companies whether they would be interested in a licence to implement the innovation.
- Investigate whether the innovation can be directly implemented within the organisation and procurement standards of Rijkswaterstaat:
 - Can the innovation be directly implemented in the primary process of Rijkswaterstaat? Does the innovation fit in the chain in which it must function?
 - Does the innovation fit within the contracts Rijkswaterstaat maintains? Are there obstacles within the procurement documents, technical documents or underlying technical standards?
 - Are there any intellectual property rights associated with the innovation?
 - What is the risk profile in the event that the innovation is directly implemented in the primary process?
 - What opportunities arise if the innovation is directly included as part of a current procurement?

The further investigation into existing innovations can lead to two conclusions:

- 1 The innovation can be directly implemented in the primary process by means of a regular contract. Go to step 3A.
- 2 The innovation is not yet ready to be directly implemented in the primary process, but it is promising. Go to step 3B.

⁴ The selection of a special innovation without competition must be done transparently to make it quite clear that the innovation is unique and is not also being offered by a competitor. The added value this innovation brings must also be clear. If an innovation has already proven its worth (e.g. for a water board, in another country), this makes it fairly easy for Rijkswaterstaat to determine what its added value is.

Step 2B: No innovative solutions from the market are available, but the national or international market does have the knowledge and expertise to develop an innovative solution in time.

No innovative solutions are yet available during this phase, but the national or international market does have the knowledge and expertise to develop an innovative solution in time. There is also a sufficient demand for these solutions. Rijkswaterstaat makes use of demand-driven innovation without itself participating in the innovation process (except for the testing and validation phase). This can take place in a pre-commercial setting.

In this phase, it is important to examine the following questions:

- What is the time frame for the development of the innovation in relation to Rijkswaterstaat's innovation need?
- What testing and validation facilities are needed and is there a role for Rijkswaterstaat in this?
- Are enough parties active to achieve a perfect market or is there a risk of a future vendor lock-in?
- How is the intellectual property arranged between the various market parties involved in the development?
- Does developing the innovation provide opportunities for the competitive position of the Netherlands?

The answers to these questions help in selecting the type of contract. The further development of an innovation can take place in either a competitive or pre-competitive setting.

Step 2C: No innovative solutions from the market are available. The national and international markets do not have the knowledge or expertise to develop an innovative solution in time

In this case, Rijkswaterstaat is faced with the choice of resorting to demand-driven innovation and participating in the innovation process (e.g. financially or through testing and validation). Rijkswaterstaat investigates whether there are other commissioning parties with the same need and attempts to pool demand as much as possible. This allows for sharing the development costs of the innovation. Rijkswaterstaat looks at other commissioning parties, as well as at what sister organisations in other countries and EU parties are doing. The preference is for an innovation that can be jointly developed, preferably in a pre-commercial setting where Rijkswaterstaat also has an interest in developing a market for the new knowledge. The innovation process is thus relatively open.

In the follow-up to this phase, it is important to examine the following questions:

- What is necessary for transforming current knowledge into an innovation that can be implemented by the commissioning parties?
- What steps are necessary for achieving this and are testing and validation facilities necessary?
- How actively does Rijkswaterstaat participate in the various phases that are necessary?
- How is the intellectual property arranged between the various market parties involved in the development?
- How do we ultimately move from a pre-competitive development phase to a healthy market model, with choices for commissioning parties and healthy competition? What agreements already need to be made at this stage? Will there be enough demand to create a market?
- What agreements need to be made regarding intellectual property, licences and royalties?
- Does developing the innovation provide opportunities for strengthening the competitive position of the Netherlands?

Step 2D: There is sufficient knowledge and expertise, but an insufficient demand to develop this knowledge

In this case, Rijkswaterstaat can take two courses of action. The first runs directly via procurement, with Rijkswaterstaat acting as the launch customer and preferably in cooperation with other parties. The second course of action is financing: setting up an innovation fund can lower the investment threshold and allow for sharing of future revenues (see section 9.3).

Step 2E: Researching possibilities of European cooperation and co-financing

In Europe, there are many initiatives in the area of innovation. Rijkswaterstaat wants to participate in these as much as possible. Therefore, where possible, Rijkswaterstaat will conduct research into the possibilities of European cooperation and co-financing for innovation projects.

Phase 3: Procurement phase

After the research phase has been successfully completed, the procurement phase can commence. During this phase, the type of contract is selected and the procurement is worked out in further detail.

Step 3A: Procurement within the primary process

If it was concluded during the research phase that the innovation can be purchased within the primary process, a number of contract types are available. These are discussed below.

Regular integrated contract. This is a regular purchase in accordance with Rijkswaterstaat's standard contracts. Through the most economically advantageous tender (MEAT) method, Rijkswaterstaat can grant extra points for innovative capacity in order to give those solutions a better chance of being selected. In principle, this procurement method is preferable, as it is the standard within Rijkswaterstaat. If innovation is procured in this way, it is best to also explicitly include it in the project scope, the procurement plan and the procurement documents.

Regular contract with bonus package. In this variant, the innovation does not fall within the basic scope of the procurement, but the commissioning party announces a bonus in terms of monetary value. Tenderers can decide themselves whether they want to submit a tender for the bonus package. This contract type is particularly appropriate when the innovation is desired but only a limited budget is available for it. There should also be synergy benefits with the regular procurement.

Early market approach. An early market approach is particularly interesting with respect to infrastructural projects with opportunities in the surrounding area or opportunities for market parties. To truly give tenderers more room for submitting innovative solutions, it is important to involve contractors in the project at an early stage. They will only present their real ideas once they know for sure that these ideas will be considered in the final award decision.

Maintenance phase: flexibility in contract relationship. In the case of long-term contracts, it cannot yet be ascertained at the moment of procurement which innovations will become available during the contract period. By incorporating flexibility into the contract relationship, the commissioning party and contractor make agreements in advance as to how they want to make use of opportunities for innovation during the contract period.

After a procurement method has been selected, it can be incorporated into the procurement plan and the contract documents. The further procurement takes place in accordance with the regular process within Rijkswaterstaat.

Step 3B: Procurement by means of innovation-oriented contract types

If it is determined in the research phase that no suitable innovations are available, but the expertise to develop them does exist, Rijkswaterstaat can opt for an innovation-oriented approach aimed at producing implementable innovations.

Four contract types are available for this within the policy framework, but considerable variation within these is possible. Project managers and procurers who want to work with these types of contract are advised to do so in consultation with the national procurement and innovation sections.

Pilot or testbed. A pilot or testbed is most appropriate when innovations that are available still need to be tested and validated. The creation of experimental space also falls under this contract type. Rijkswaterstaat is currently working on a new test vision which lays down the conditions for pilots and test beds. This type of contract is not only suitable for projects, as it can also be implemented at the programme level, thereby connecting a test bed to a multiple programme target.

Contests. Contests challenge market parties to come up with a solution to a problem, with the best solution ultimately being implemented in a project. In this way, the contest comes very close to the primary process. A successful contest requires good planning regarding the path to ultimate implementation. Things to take into consideration are procurement law requirements and dealing with intellectual property among the participants.

Pre-commercial procurement. Pre-commercial procurement is a preparatory stage during which the risks associated with an innovative solution can be eliminated before the commissioning party purchases and commercially implements it. Pre-commercial procurement is most appropriate when Rijkswaterstaat uses a structured method to have market parties develop innovations for subsequent purchase. Pre-commercial procurement (PCP, see Appendix D) is the best known form of pre-commercial purchasing.

Alliance or partnering contract. These contract types are used for innovations that involve considerable uncertainty or for which it is difficult to quantify risks or attribute them to one party. Alliance or partnering is also a possible form of cooperation in complex environments in which an innovation must function in a complex chain.

Contract

The contract types described above are generic choices that must be worked out in specific detail within the procurement domain in which the innovation takes place. In addition, other contract types may be common in certain procurement domains. Project managers and procurement officers who want to work with these contract types are advised to contact their procurement board.

Intellectual property

When drawing up a contract, lay down the risk distribution clearly and make agreements regarding the intellectual property. Especially when Rijkswaterstaat has already described a problem-solving approach, it is important to clearly state which intellectual property belongs to Rijkswaterstaat and which intellectual property belongs to the contractor. Also ensure that Rijkswaterstaat possesses the usage rights for repeated use of the innovation.

Phase 4: Implementation phase

During the implementation phase, the purchase is effected and the innovation or innovation project is implemented.

Phase 5: Evaluation phase

The last step is the evaluation phase. This is a phase that receives relatively little attention, even though it is crucial for implementing the innovation in the primary process.

The evaluation should at least include the following questions:

- Does the innovation satisfy the innovation need as formulated in step 1A?
- What is the added value of the innovation in terms of functionality, flow, safety or costs?
- Is the innovation sufficiently developed and stable to broadly implement it in Rijkswaterstaat's primary process?
- If so, what is needed to safeguard the innovation in the primary process?

Appendix B: Rijkswaterstaat as lead customer

There are three ways Rijkswaterstaat can be approached:

- 1 To participate in the development of an innovation: there is an invention with potential that must be developed into an innovation. Rijkswaterstaat is asked to participate by contributing both human and financial resources.
- 2 To test an innovation that has been developed: Rijkswaterstaat is asked to make part of the Rijkswaterstaat networks or testing facilities available in order to test the practicability of the innovation that has been developed by the business sector.
- 3 To perform an assignment for implementing an innovation: Rijkswaterstaat is approached by a company or consortium to implement their innovation in one of Rijkswaterstaat's networks.

In each of these approaches, Rijkswaterstaat is beholden to European tendering legislation or competition legislation. This means that it must be transparent in its selection of the project or product for which it can act as lead customer. Before Rijkswaterstaat responds to any of the three approaches, the following questions must be answered:

1. *Does the invention or innovation provide a solution to the problem at Rijkswaterstaat and does it provide clear added value?*
 - a. **No:** Rijkswaterstaat is not interested and will not participate, perform an assignment or make facilities available for testing.
 - b. **Yes:** continue to question 2.
2. *Are there any other innovations on the market that provide a solution or answer? Are these parties also interested in financial or technical assistance or an assignment from Rijkswaterstaat?*
 - a. **No:** continue to question 3.
 - b. **Yes:**
 - i. *Invention:* is it useful for Rijkswaterstaat to start a pre-commercial procurement (PCP) procedure?
 1. *Yes:* start PCP procedure.
 2. *No:* no interest from other parties, for instance.
 - ii. *Testing:* do the other parties also have a need for testing facilities (i.e. preventing unfair competition)?
 - iii. *Implementation:* is there a particular Rijkswaterstaat project in which the innovation can be implemented?

3. *Are there any market parties with the knowledge and expertise (and desire) to develop an innovation or solution in the short term?*
 - a. **No:** Rijkswaterstaat can participate in the development of the innovation (e.g. as part of an alliance) or make testing facilities available or commission work (privately, reported to Brussels).
 - b. **Yes:** Rijkswaterstaat starts:
 - i. *APCP:* parties that do not have a solution/idea at present are given the opportunity to quickly develop one.
 - ii. *A testing programme:* this gives the parties that do not have a solution at present the space for testing later on.
 - iii. *A public procurement procedure:* all interested parties can submit a tender.

Precondition for participation: to prevent the participating parties from acquiring a monopoly position, Rijkswaterstaat will have to share the outcomes with other interested parties. This must be laid down in the agreement with the selected market party or consortium.

Appendix C: Intellectual property

On 1 November 2007, Rijkswaterstaat, Bouwend Nederland, NL-Ingenieurs, Agentschap NL and CROW (administrator of the Uniform Administrative Conditions for the Formulation of Integrated Contracts 2005, 'UAVgc 2005') signed the Intellectual Property Covenant. This covenant seeks to promote innovation by better protecting the intellectual property of contractors. The covenant was drawn up by a working group. The result consists of a proposal to amend the section on intellectual property in the UAVgc 2011 and an approach for taking intellectual property into account upon submission of tenders.

Licence instead of intellectual property

The covenant provides that from this point onward, the commissioning party shall be given a licence instead of intellectual property rights. The licence will give the commissioning party the right to freely maintain or change the work. When the commissioning party repeats the work, it must pay royalties to the contractor.

In this way, the contractor, as the owner of the intellectual property rights, retains the ability to provide the particular component to other commissioning parties exclusively, and in so doing generate revenue. This allows the contractor to spread development costs over several assignments or commissioning parties and offer its innovation at a more competitive price. In addition, a market for development can arise because it is now profitable to focus solely on development and earn money through royalties.

Incidentally, arranging royalties for repeated use in a tender will cause a complication from a procurement law perspective. In tendering, there is an inverse correlation between the submission price and the royalty (a high royalty for repeated use enables the contractor to tender at a lower price). It has taken time to develop a solution for this problem.

Clear agreements in advance

Rijkswaterstaat approaches each tendering procedure from the same point of departure: clear agreements in advance. In concrete terms, this means that a tenderer or contractor who plans to implement a component for which he owns the intellectual property rights must notify the commissioning party of this as early as possible or in any case prior to the implementation. The commissioning party can then determine in advance whether or not to accept the implementation. The commissioning party and contractor can also agree in advance on the royalties that the former will owe the latter for repeated use.

If the contractor fails to notify the commissioning party in advance, the commissioning party receives a licence for repeated use without owing any royalties. This can be particularly important for preventing the contractor from acquiring a monopoly position if no alternatives to the particular component are available on the market. The draft provisions also contain an anti-abuse provision: the commissioning party cannot abuse its right if it has obtained it 'accidentally'.

Knowledge and information services

With respect to knowledge and information services, it is not necessary to claim the intellectual property, but it is wise to stay alert. Both R&D and information services pertain to 'something that isn't there yet'. And if 'that which is not there' must be changed later on repeatedly at no small cost because we are the only notable commissioning party (demand monopoly), an open licence model is less appropriate. Therefore, for modifications primarily used only by Rijkswaterstaat, we prefer to own or share the intellectual property. In certain situations, knowledge that has been specially developed for Rijkswaterstaat can be issued under licence, with or without the right to change it. This makes it more attractive to suppliers. It does require separate administration, however, but the benefit is that there are no obstacles or high costs due to Rijkswaterstaat not having the intellectual property.⁵

When making choices with respect to intellectual property, consider:

- whether the requested solution can be used (and improved) widely;
- whether the product can also be sold to other customers by the entrepreneur;
- whether there might be any surprises in store.

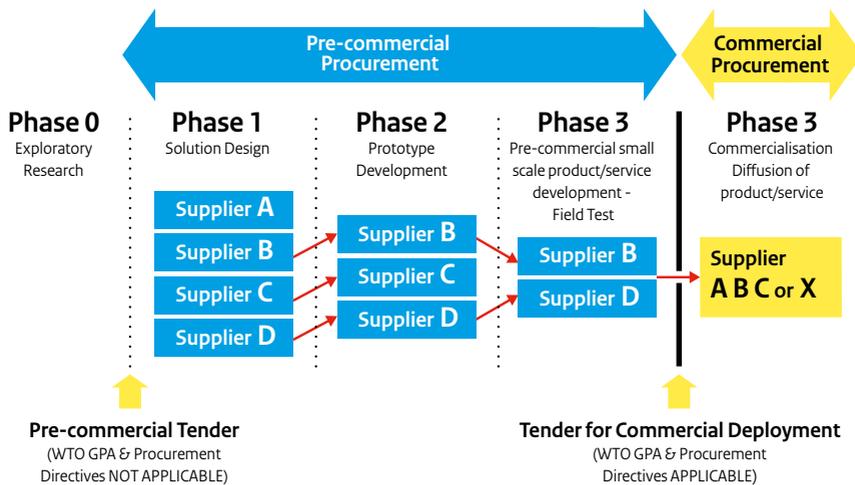
⁵ The new European directive regarding the awarding of government contracts (COM2011 896) assumes (in Article 29) that, after each phase, the commissioning party may decide to terminate the innovation partnership and launch a new tendering procedure for the remaining phases, provided that it has acquired the relevant intellectual property rights.

Appendix D: Pre-commercial procurement (PCP)

Pre-commercial procurement is a preparatory stage during which the risks associated with an innovative solution can be eliminated before the commissioning party purchases and commercially applies that solution. It is important to clearly define the start and end of the pre-commercial procurement phase. It is also important to ensure an open and level playing field so that all interested companies will have the opportunity to participate.

Pre-commercial procurement (PCP) is the best known form of pre-commercial purchasing. PCP is used by Rijkswaterstaat in the CHARM project (in cooperation with the Highways Agency and with the support of the EU). The BIM and Beter Benutten projects also work with a PCP procedure.

The PCP process consists of three phases during which companies are expected to produce various interim deliverables (solution proposal, prototyping, testing). Based on the preset criteria, Rijkswaterstaat determines whether a company can move on to the next phase. There is a cap on the compensation a company can receive per phase. Solutions that pass the testing phase can compete for construction or maintenance assignments. The companies in question no longer have to demonstrate that their solutions work and instead can refer to the PCP. Companies that submitted a solution but did not participate will have to demonstrate the usefulness of their solution.



Working together & Rijkswaterstaat



Rijkswaterstaat's main objective is to improve accessibility, liveability and safety in the Netherlands, and to achieve this we work with other public authorities, business partners, knowledge-based institutions and civil society organisations. This collaboration is increasingly important due to the growing complexity of infrastructure projects in the densely populated Netherlands and this requires smart solutions, shared knowledge and continual innovation. Client and contractor need to work together, as much as possible, as professional partners with a common goal.

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Public Procurement of Innovation Policy Framework Key points

Rijkswaterstaat aims to mobilise partners in particular, in order to bring in knowledge and innovations.

The need for innovation is not always compatible with the desire to complete projects on time, within the budget and without taking too many risks. Innovation is inherently risky and requires room for experimentation. To innovate, one must accept the possibility of failure.

A vision on future social demands or technical requirements is necessary to bring Rijkswaterstaat's innovation needs into sharper focus. Without this vision, every innovation sounds

interesting, but not much can be said about its usefulness.

Effective innovation policy calls for professional employees who are able to connect Rijkswaterstaat's core tasks to developments in the (knowledge) network society.

New cooperation arrangements with market parties and knowledge institutions are necessary for coming up with new solutions.

Research and development require investments, so major innovations should not be expected in a regular call for tenders.



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For more information, visit
www.rijkswaterstaat.nl/en
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(Mon – Sun, 6 am – 10.30 pm, free of charge)

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