PIANOo DUTCH PUBLIC PROCUREMENT EXPERTISE CENTRE

PROCUREMENT

FOR INNOVATIVE PROPOSALS

Innovation-driven procurement
publication

PUBLIC INNOVATION PROCUREMENT IN THE NETHERLANDS

The Dutch government annually spends more than 57 billion euro on products, services and works. The procurement of these things means aiming to get the right quality at the best price. But another objective for many Dutch government bodies is the continuous innovation of products, services and works.

Public innovation procurement is the targeted search for innovative solutions from the market. Because of the immense purchasing power of government, public innovation procurement promotes the innovative force of the Dutch market (within the terms of effectiveness and efficiency of public spending).

The term 'innovation' is often suggestive of radical, high-tech developments. Yet actually, this could not be further from the truth. The modification of an existing product to better meet the demand for it is equally considered to constitute innovation. For example, asphalt has seen many innovations in recent years.

WHAT IS PIANOo DOING IN THIS AREA?

PIANOo provides a stimulus to government bodies to elicit innovation from their procurement procedures. PIANOo brings together experts within the **"Public Innovation Procurement"** expert network, combines knowledge and experience, and gives advice.

PIANOo also advises government bodies on how they can achieve innovative solutions in tenders, for example, in the field of protective clothing, cleaning and transport services. Furthermore, a budget is available for risk assessments and market surveys. PIANOo uses manuals, presentations and articles in professional journals to raise awareness of public innovation procurement opportunities. During themed meetings and in a PIANOo online discussion forum, buyers and procuring parties can exchange knowledge and experiences.

CONTENTS

INTRODUCTION

A public organisation wishing to make use of the creativity and innovating potential of the market can explicitly require tenderers to provide scope for innovative proposals. Proposals which provide solutions to a purchaser's problems are known as 'solicited proposals'.

The central question posed by this guide is: how can public organisations meet their needs as efficiently as possible, while exploiting the innovative power of the market? The guide follows the steps of an innovation-driven call for proposal, as illustrated in figure 1.

Section 2 shows how you arrive at an innovation-driven question. Each purchase starts with a requirement/request from the client, or potential client (needs and needs survey). It is important to involve users and market parties when working on this request. A market survey can provide input for the formulation of an innovation-driven request; and you need to know what possibilities are available.

On the basis of the market orientation market and after checking this against policy, a purchasing strategy can be formulated. This will include reviewing the different phases of the purchasing process to help formulate a call for innovative proposal. *Section 3* discusses procurement of a development (purchasing strategy). The last phases of the process are worked out in the sections that follow. Providing functi-onal, performance-driven, effect-driven specifications allows the user and potential contractor to be fully involved in the procurement process. The specification phase is dealt with in *Section 4.*

Innovation-driven procurement can mean greater scope for market involvement. Market orientation can be carried out long before the procurement process begins. Procedures during the procurement process, such as competition-dialogue and open competition, can have a positive effect. These and other issues are dealt with in

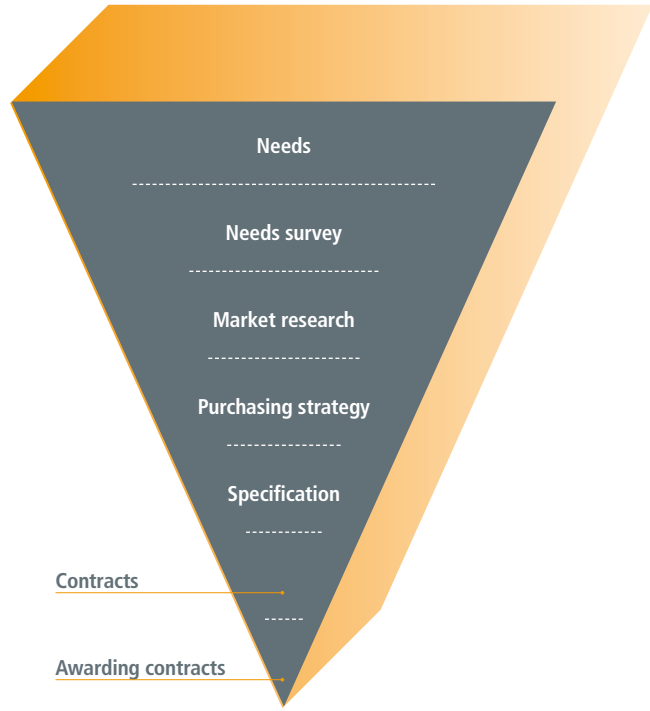

Figure 1 **Purchasing process**

Section 5, where we outline the procurement process. Innovative proposals can be very different in nature and this can make comparison for selection more difficult. *Section 6* deals with the methodology of awarding a contract.

Finally, *section 7* deals briefly with contract risks. How can these be limited by contract management? In *section 8* we close this guide with a number of lessons on procurement for innovative proposals.

NEEDS ASSESSMENT

1

Every purchase begins with a need/request from the client, see Figure 1 on page 5. Suppliers and end-users can be involved at an early stage. In this phase the dynamics with the market, consultation with your own organisation and users is important. Purchasing for innovation is really more successful if an assessment is made within the organisation, to define which projects require innovation to achieve their aims, for instance, in the area of sustainability. That also provides potential to combine projects and broaden the scope of a request at the same time. A broader scope often provides more opportunities for innovation. You can discover whether this is the case through exploration with the sector and the end-users.

REDEVELOPMENT ORINOCODREEF

The procurement for the Redevelopment of ORinocodreef no.s 7-9 in Utrecht involves the allocation of a plot of land formerly housing a school. The intention is for the developer to design an integrated development for a residential area of approximately 60 houses. Because of the commotion caused by the proposed development it was decided to put the project onto the market through a European non-public procurement procedure. The evaluation could be carried out primarily on the basis of quality (spatial quality and communication with the neighbourhood), because the tenderers were tied to a minimum bid for the land. Fifty percent of the evaluating committee comprised local residents, so the neighbourhood was actively involved in drafting the evaluation framework for evaluating the proposals.

Image1 **Needs and Needs Assessment**

Involving future users

There are several ways of involving users in product development. The key is to stimulate their imagination.

To facilitate users and involve them in the service development process there are a number of techniques to generate user input. These techniques are divided on the basis of three levels (Kaulio, 1998):

1. **Design for:** users are more or less objects of study, providing general requirements for a service. The users are not actively involved in the development;
2. **Design with:** an interactive approach in which various plans are evaluated by users in different phases of the design process, after which the plans are revised.

3. **Design by:** users are actively involved in the development and selection of suitable services. Not only by giving their opinions and describing their problem, but also by active involvement in seeking solutions.

It is evident that the **design by** technique demands more input from all those involved than the **design for** technique. However, it can produce a better match. The greater the importance of a purchase (to society or the end-user) the more justified is the investment made by the **design by** or **design with** techniques. In other words, it is worth the extra investment.

Users' needs rarely remain constant during the development process. To ensure that the service meets the wishes of the user at the moment that it is actually offered, it is important to continue to assess the user's need and feedback during the whole development process.

Involving market parties

There are various ways of collecting market knowledge and involving market parties in the different phases of the purchasing process. In the orientation phase it is important to:

- Research the relevant market parties.
  This can be done by:
  – collecting as much information as possible from sector organisations;
  – consulting the NL Octrooicentrum (patents) data bank;
  – visiting trade fairs.
- Hold discussions with business or organise a market day on issues involved in a planned tender or involved in one that will be needed in the future. This will help you test project ideas, get ideas from the market and sound out potential interest.
- Develop a strategic document on one or several comparable tenders and organise a market participation day for it. Think for example of a local government that is developing an energy saving strategy for buildings and the built environment. Market parties are then asked to develop a vision of the ways they could make a contribution.
- Open a website and portal for future tenders which enables potential providers to give input to the call for proposal, the specification and the possibility to innovate. Maximum transparency is key here.

'DESIGN WITH' RESIDENTS

An example of the Design with method is the living lab methodology applied by various projects such as Ymere's Smart Energy Home (SEH). Here innovative solutions were sought to reduce the residents' energy use. The SEH was tested for a lengthy period with the residents of Amsterdam-Noord. This is an innovative meter that not only makes actual energy use more visible, but also shows the costs. Residents can also set savings targets in the SEH and energy use can then be reduced in an appealing way. If this experiment is a success Ymere may decide to purchase the meters on a large scale.

PROCUREMENT

DEVELOPMENT

2

A purchasing strategy must be formulated on the basis of the needs assessment and a market study. This may reveal that existing solutions cannot meet the need and that it is important to ask specifically for an innovative solution. Within European procurement rules it is possible to procure research and development. This is known as pre-commercial procurement.

If the purchasing strategy assumes an explicit search for innovation-driven solutions, then it is important to explore whether the purchasing process could be split up into a pre-commercial and a commercial phase.

In a pre-commercial phase it is possible to:

- set a new development in motion with the sector. This will only be possible for a few organisations, because of the risk and the investment required;
- procure a development as far as the prototype stage. This option is more suitable if solutions are required in the longer term.

The commercial phase can then be started on the basis of the prototype. Separating these phases provides more scope for competition in combination with innovation.

The former Minister of Economic Affairs developed the Small Business Innovation Research Programme (SBIR) for pre-commercial purchasing, along the lines of a successful model in the United States. Via the SBIR programme the government can call on the sector to find solutions for societal issues. For instance, biodiversity, green raw materials, dyke inspections or bio-based economy. The commissioning government body publishes procurements at Agentschap NL and itself provides the budget for businesses to carry out feasibility studies and for the development of prototypes. Businesses submit a quotation. An independent committee of experts evaluates all the quotations and advises the Minister concerned. Several businesses are given a contract and set to work.

An SBIR project comprises 3 phases:

- feasibility study
- research and development, including demonstration
- preparing the product, process or service for the market.

The government only funds phases 1 and 2. The third phase is intended to make the product ready for the market and commercialise it. The final result of an SBIR project is a concrete product or service which will earn money for the company.

The contracting party often supports the builders of prototypes by actively looking for ways of applying them in its own organisation, or sometimes even elsewhere. It is of course the task of the service making the purchase to draw up functional specifications and to select the winning party.

Image 2 **Purchasing strategy**

DIGIDIJK

Rijkswaterstaat (The executive arm of the Ministry of Infrastructure and the Environment) challenged businesses to develop innovative proposals for the inspection of dykes, after dykes were unexpectedly breached at Wilnis and Stein. The question to the market was simple and allowed much scope: "Are new techniques available for permanent real-time dyke monitoring?"

In 2007 five proposals were granted funds for feasibility studies. In 2008 two promising proposals were selected for further development to prototype, in collaboration with several water authorities: `GeoBeads' and `Monitoring of dams from space'. GeoBeads involves the transmission of data from measuring instruments that are inserted into the dyke. Monitoring from space allows dyke inspectors to detect minute changes in the dyke.

For more information about the SBIR programme and Digidijk purchasing programme, see publication *Practical lessons* of this PIANOo series on Innovation-driven Purchasing.

FUNCTIONAL
SPECIFICATIONS

3

The phase of the purchasing process in which the most influence can be exerted on the end result, in addition to the needs assessment and determining the scope of the contract, is the specification phase. Designing functional specification is an excellent way of encouraging the market to come up with innovative solutions, as it allows the contractor the scope to provide very diverse solutions. However, functional procurement will mainly lead to relatively simple innovations. Radical change usually requires a longer period of preparation, which involves reviewing strategic changes in the long term, organisational changes, determining the norms and values and ultimately the desired scope of a contract.

In designing functional specifications the requirements are less detailed than in traditional procurement where more responsibility is given to the contractor. In other words, designing functional specifications sets out the performance needed from a system in the form of requirements, based on the function of the system.

Functional requirements must be SMART:

- **Specific:** Describe the objective clearly and concretely. It must describe a perceptible action, behaviour or result linked to a number, amount, percentage or other quantitative data.
- **Measurable:** There must be a system, method and procedure to determine the extent to which the objective has been achieved at a certain moment.
- **Acceptable:** Is there support for what we are doing? Is it in line with policy and the organisation's objectives? Are the people involved prepared to commit themselves to this objective?
- **Realistic:** Is the objective achievable?
- **Fixed timeframe:** A SMART objective has a clear start and end date.

Primary and secondary functions

An important element of designing successful functional specifications is that the requirements are laid down from various viewpoints: from the environment, the commissioning body, the technology and also from the user. More importantly, designing

Image 3 **Specification**

functional specifications makes it possible for users to make a transparent contribution, where the responsibility for the solution lies with the contractor.

It is possible to differentiate between primary and secondary functions. Secondary functions often involve the requirements of secondary users, for instance residents in the case of road construction. Supporting functions are eminently suitable for performance and effect-driven requirements. The Dutch Ministry of Infrastructure and the Environment, *Rijkswaterstaat*, often places the condition on its construction works that residents and road-users must suffer as little disturbance as possible.

Functional specification demands good communication between the internal and external parties involved in the procurement process. These may include potential contractors. Defining requirements together can avoid misunderstanding and diverging interpretations. This makes it possible to draft an unambiguous functional description with primary and secondary functions. In addition conditions can be formulated that are binding for the commissioning body.

Only providing scope for new solutions is often insufficient to enable contractors to actually come up with innovations. It is often important to tell them explicitly that innovative solutions are welcome. In addition an unambiguous and logical functional specification of the system is vital. It really is possible to allow the potential contractors to influence this process, for instance by formulating work hypotheses and testing these beforehand with market consultants and competition-based dialogue. This dialogue can make it expressly clear to them that innovation is wanted and that the commissioning body dares to take risks.

A functional specification demands a good risk analysis and for the contract to be awarded on the basis of the most economically advantageous proposal (price/quality ratio). Awarding contracts for the lowest price is in many cases not possible. Assessing quotations is more difficult for contracts that are functionally specified. The assessment/awarding criteria should be properly considered beforehand, which will cost extra time.

PROCUREMENT
FOR INNOVATION

4

We describe below a number of procedures that can be employed to encourage innovation, what each procedure involves, and how you can encourage innovation, along with some practical examples.

Market involvement can be achieved by the following steps:
- preliminary announcement
- market consultation
- competition-driven dialogue
- allowing for variant
- open competition

Image 4 **Procurement**

Preliminary announcement

The preliminary announcement is an instrument in procurement law used to inform market parties of a planned contract. Businesses would usually use this information to assess the attractiveness of the contract in the light of their planning and may change their plans. It is also possible to use the preliminary announcement to prepare the market for a contract with innovation-driven characteristics. Businesses can then collect information, make contacts and research ideas before the registration term expires. They can also tighten up the requirements with the commissioning body. In this case to achieve the desired close interaction it is perhaps better to use market consultation or even the competition-driven dialogue.

Market consultation

Market consultation or sounding is a process of interacting with the market before the procurement procedure is started. This is usually carried out at the stage when the commissioning body has insufficient knowledge of the possibilities on the market, is unsure of the course it has chosen, or where there are serious risks involved or commitment is required from the market for a chosen solution. Projects aimed at innovation are therefore relatively often be preceded by a market consultation.

In a market consultation parties could provide a general concept for the problem, suggestions for solutions or the technical approach, but also, for instance, the project-based approach or the appropriate form of contract which would enable the market to develop innovative concepts on the basis of the contract.

For the instrument to be effective it is important to carry out proper market analysis (see figure 1 of the introduction). It may be that an idea has already been formulated, allowing the market to react to it, and so provide some framework for the discussion. In this case it is important to remain objective and avoid solutions in the direction that would create a vendor lock-in situation. At the end of the process the chosen solution should be once again be compared to the original needs assessment to ensure that the choice has not inadvertently fallen to the Rolls Royce of solutions.

Competition-based dialogue

The procedure for competition-based dialogue differs substantially from a normal public or non-public procedure. The greatest difference is the way proposals are called for. In the competition-based dialogue you start with a question which has no obvious solution, for example when innovation is required.

The commissioning body cannot then formulate a possible solution before calling for proposals. In such cases a well-designed competition-based dialogue can be of great value. Interaction with the market in a competitive setting (where positive behavi-

our can be rewarded with a better chance of winning the contract) could lead to a breakthrough. In order to reduce the administrative burden for parties the commissioning body can decide to use a phased approach to selection of parties.

Before any contract is placed on the market (including competition-driven dialogue) it is wise to conduct a market and needs analysis, possibly supplemented by a market consultation. In innovation-driven contracts above all, market parties will not put all their cards on the table in the phase when they are not under any obligation. This can usually only be achieved in the competition-based dialogue. The market analysis is necessary in order to provide a counterweight to the market parties in the competition-based dialogue. This will also reduce the market's information gap regarding the commissioning body.

It is important that a commissioning body realises that proper design of a competition-based dialogue demands time and effort. If competition-based dialogue is used for market analysis and consultation some time will be lost. In short, the competition-based dialogue cannot replace the market analysis and/or market consultation.

Variants

Public procurement law provides scope for commissioning bodies to accept variants of their chosen solutions, technical or otherwise. This can result in innovation as parties are given the scope to provide different solutions from those prescribed by the commissioning body. Variants differ, but provide a solution to the same problem as the classic problem chosen by the commissioning body. As variants are evaluated within the same package using the same award of contract criteria, they will only be chosen if they lead to a better deal for the government, that is, a better price, delivery time or quality. Innovation in itself is not a distinguishing element, unless this is explicitly included in the award of contract criteria.

A word of warning is necessary about variants. The commissioning body must think carefully about the design of the procurement procedure. It must for instance indicate which elements may be deviated from and which may not be. The evaluation based on award of contract criteria must be properly worked out, as it is impossible to predict what variants may be provided. The bottom line of course remains the ultimate comparability of the proposals. In short it will demand greater professionalism and experience from the officials involved in the procedure. Finally, variants are less necessary in procedures where the commissioning body chooses functional specification.

[3] See also Handreiking Concurrentiegerichte Dialoog (PIANOo e.a. 2009), guide to competition-driven dialogue, at www.pianoo.nl

Open contests

The purpose of open contest is to obtain a winning plan or design selected by a jury from entries submitted, with or without awarding prizes. This process allows a large amount of freedom to produce innovative solutions for the problem at hand.

CONTEST TO RENOVATE A BRIDGE WITH MINIMUIM TRAFFIC DISRUPTION

A good example of a recent design contest was the project for the renovation of the steel bridges for Rijkswaterstaat (The executive arm of the Ministry of Infrastructure and the Environment) Of the 274 steel bridges that were constructed in the sixties and the seventies, a large number were selected for strengthening and renovation. Since this period, the flow of traffic has increased to levels that were much higher than expected. The bridges therefore had to be renovated, but at the same time, traffic had to be able to continue to make use of the bridges.

Rijkswaterstaat launched a contest to encourage market parties to consider this question and come up with smart solutions. Rijkswaterstaat earmarked half a million euros for the most innovative solution. Whether the solutions offered better logistics, a traffic engineering solution or a technical innovation, the key aspect was to minimize traffic disruption.

The contest generated a very large amount of interest. The jury assessed 165 ideas received from market parties and individuals around the world. Rijkswaterstaat selected ten ideas for further development, and allocated 100,000 euros to each one. The winner was selected on 13 October 2009 and was awarded 500,000 euros. Bureau Angenent and Hurks Concrete submitted the best idea with the least disruption to traffic.

A noteworthy aspect of this contest was that Rijkswaterstaat tried to make the solution available to every client. The idea is not for Rijkswaterstaat to take ownership, but for the idea to remain the property of the party that submitted. Rijkswaterstaat has an open license with all ten finalists and if the idea is used, royalties that are agreed in advance are paid to the party that submitted it. The finalists also receive half a million euros if their idea is used by Rijkswaterstaat within five years. That encourages entrepreneurs to assume the risks and bear expenses for the development of the idea.

SELECTION
FROM INNOVATIVE PROPOSALS

5

The demand for innovation is essentially one of providing suppliers with the scope or even with the specific question of coming forward with proposals for something new. This might produce a wide range of proposals in which case a selection of the best will have to be made. The maxim is often: the wider the range the more difficult the task. But on closer inspection, selecting the best is less difficult than it seems. If all tenders differ only in one single aspect (for example, the contract is awarded to tender with the lowest price), then comparison would be easy.

Innovative proposals may vary in many aspects but these aspects need not all be relevant for the selection. In the case of, for example, innovative proposals for the construction of a new bridge (of timber, bamboo or hard plastic) it will be hard to compare the technical aspects but comparison at a slightly higher level of abstraction is still possible. Aspects of price (or TCO), delivery schedule or sustainability can easily be compared. Selection based on a number of aspects or selection based on the criteria for 'the most economically advantageous tender' (EMVI) is more complicated as the criteria from all the different proposals have to be weighed up and combined into a total score.

All this means that procedures to award contracts need to be considered. The function of tender criteria should be defined as clearly as possible to enable proper comparison at higher levels of abstraction.

RISKS
MANAGEMENT

6

No innovative solution whether actively encouraged or not, can be considered a 'proven technology'. This means that many uncertainties are involved for the commissioning body and for the contractor themselves. How should these uncertainties in execution or delivery be dealt with? What should be laid down in the contract?

Before drawing up or entering into a contract a thorough risk analysis should be carried out. It is important to know:

- The risks there are and the chances of these risks actually occurring, and
- The party that is best able to bear the risks. Some parties like to place most of the risks with the contractor, particularly if they are responsible for the entire project. This could increase costs!
- The stages these risks could occur. This could have consequences for the desired consensus between commissioning body and contractor.

It is very important to identify the risks and place them with the party that is best equipped to deal with them. This is also the cheapest way to go about it. CROW-publication 274 *'Risico's & Aanbesteden'* describes the process of how to spread the risks in building projects so that a single contract covers the design and implementation of an entire project.

On the basis of the risk analysis outcome, project specifications and the proposed tender, the contract should include the following elements:

- the contractor's results/effort commitments
- the evaluation moments between commissioning body and contractor
- an arrangement in case the proposed solution does not work
- how the contract management is arranged
- a bonus arrangement depending on the results achieved
- the best possible regulation of the intellectual property rights. The government usually claims the intellectual property rights in procurement and purchasing procedures. Not only will it then pay too much, it is also often an obstacle to innovation. To promote innovation and ensure paying the right price it is

important to take the risk/benefit-sharing principle as the basis for negotiations between commissioning body and contractor. Several pricing strategies may be used:

- *Licens for use:* flat rate per unit or depending on number of users.
- Make the price dependent on the amount a contractor may earn in the market place at a later stage.
- *Upfront:* the UK has contractors themselves make an estimate to be evaluated by a panel of experts.
- *Ex poste / ex ante:* requires interim reports detailing the selling to the commissioning body.

Image 5 **Contracting**

SUMMARY

- Every procurement project starts with an initial assessment of needs, and should include a dialogue with the market and potential users.
- This assessment can be specified further and may identify possible solutions already on the market to meet the demand.
- If there no such solutions already pre-commercial purchase may be considered whereby the market is requested to develop solutions. This is particularly useful where larger projects are concerned or where there are a number of procurements that might benefit from the developments.
- If such solutions already exist the purchasing process should provide scope for innovative solutions and incorporate this in the purchasing strategy. There should then be organisations in place providing this scope seeing this is important for their strategy. Sometimes innovative solutions require organisations to adapt their standards and manuals, the role of the line organisation is crucial here.
- The above shows that the initial stages of the innovation-driven purchasing process are vital. Without these first steps the specific request and the required scope cannot be realised nor will there be scope for the development and implementation of new solutions at a later stage.
- Teamwork is crucial in such processes in which alongside the project leader procurement experts and experts in the relevant field may also be involved.
- Creativity in the procurement process may bring more scope for innovative solutions.
  - Splitting up the process will not only make it easier to manage but will also give creative SMBs more scope. Tender criteria and conditions could open up opportunities for the contractor's suppliers.

– A functional set of specifications provides scope for the market, but markets will only respond if there is a dialogue and a clear framework in place. It is also important for the contractor to know that an innovative solution with all the risks it involves will fit in the organisation and the project's context.

- Innovative solutions can be very profitable in the long term. In the short term they require a willingness to take risks. These risks should be managed by placing them with the party that is best equipped to deal with them.

- The contract may include incentives to ensure that innovative solutions still under development will be put in place during the term of the contract.

- The real work begins after the contract has been concluded. The implementation of innovative solutions requires monitoring and supervision throughout the process.

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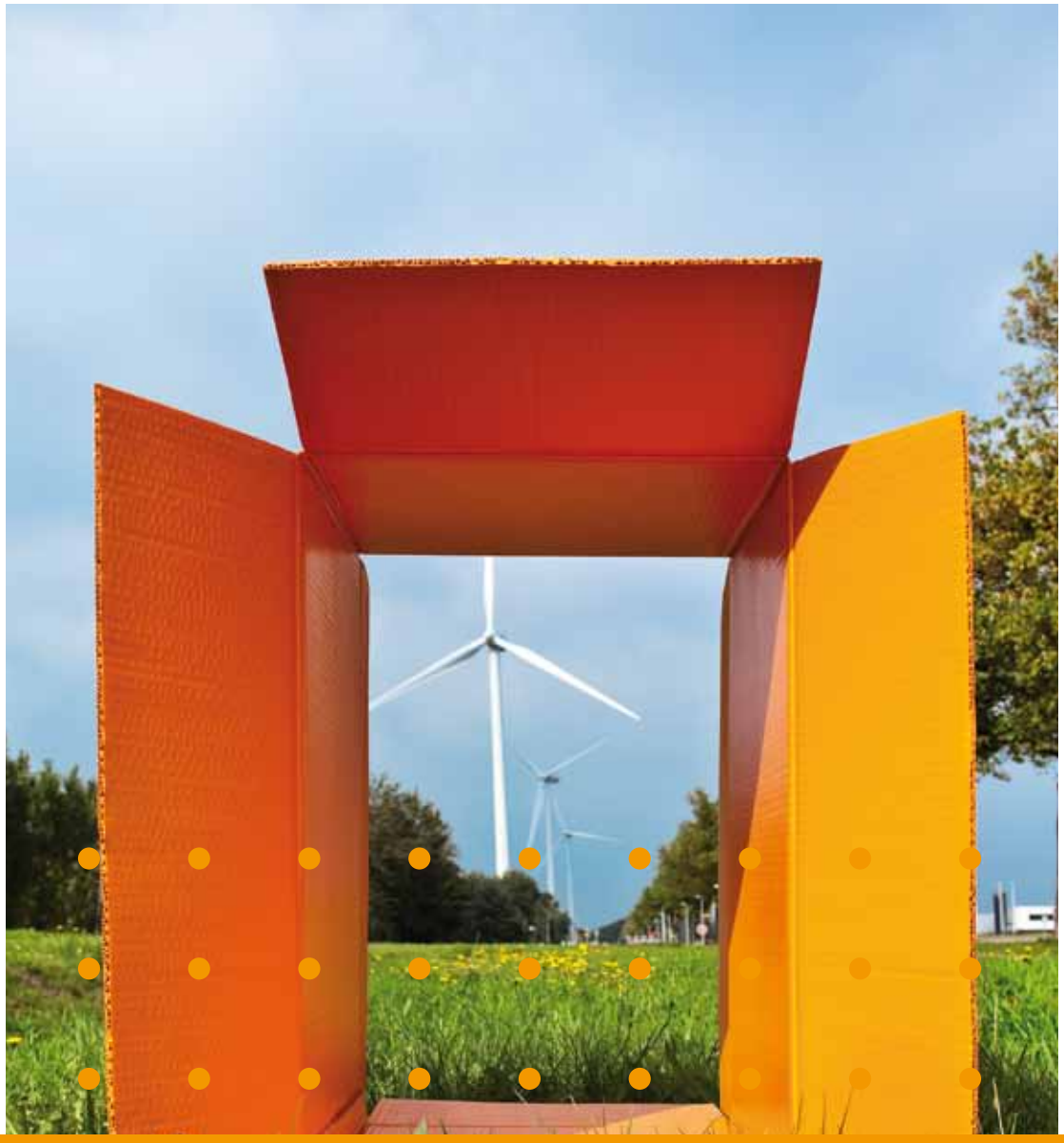

PIANOo-SERIES INNOVATION-DRIVEN PURCHASING

This publication is intended for government buyers who could play a stronger role in the process of innovation-driven public procurement. For this purpose, Innovation-driven procurement was published by the PIANOo department for public procurement management in four parts, with guidelines and examples, placing the emphasis on opportunities and scope within the rules of public purchasing. It will help government buyers to advise project leaders, civil servants and experts in his organisation.