DESIGN OPTIONS PAPER

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Pre-commercial Procurement of Innovation (PCP)

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Design Options Paper
Pre-commercial Procurement of Innovation (PCP)

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1 Introduction

1.1 Background of the paper
This Design Options Paper has been prepared in the context of the INNO-Partnering Forum (IPF) project. The overall purpose of the IPF is to develop better innovation support services for small and medium-sized companies (SMEs), on national as well as on EU level.

The INNO-Partnering Forum is coordinated by VINNOVA (Sweden) and financed by the DG Enterprise (European Commission). It brings together six of Europe's leading national innovation agencies: Enterprise Ireland (Ireland), FFG (Austria), NL Agency (the Netherlands), Technology Strategy Board (Great Britain), Tekes (Finland) and VINNOVA. The partners have accumulated a unique experience base and track record in designing, implementing and delivering innovation policies targeting SMEs, both from a national and international perspective.

This paper suggests and discusses different design options for designing, re-designing or improving initiatives in the area of Pre-Commercial Public Procurement (PCP). It is targeted at organisations such as innovation agencies, ministries or similar organisations involved in procurement. The analysis embraces the whole process of designing a PCP initiative, from the type of initiative to the service delivery system. The paper also discusses issues such as naming, legal aspects, intellectual property rights (IPR) etc. The aim is a comprehensive and practical document for use by all agencies and public bodies planning for PCP in their countries.

This paper is mainly based on the experience of the two agencies, NL Agency and the Technology Strategy Board (TSB), who pioneered the area of PCP initiatives in Europe by introducing SBIR (NL) and SBRI (UK) as the first European programmes for PCP. Work on this paper commenced by undertaking peer reviews of both programmes and synthesising the good practices as well as the need for better practices from SBRI and SBIR. On the basis of these peer reviews, the IPF launched a pilot twinning case on PCP with four IPF partner agencies (VINNOVA, FFG, TEKES and Enterprise Ireland) performing a joint design exercise using the good practices and expertise from NL Agency and TSB. This paper is one of the outputs from the pilot twinning.
1.2 Structure of the paper
The paper is intended as a guide or tool for any innovation agency, department or similar organisation that is considering, or has decided to offer, a pre-commercial procurement initiative.

Chapter 2 provides a background on the concept of pre-commercial procurement (PCP) and examples of pre-commercial procurement initiatives.

Chapter 3 contains a discussion on the rationale behind the design of a PCP initiative, a generalised flowchart for a PCP initiative and a section on lead body roles.

After that, the report presents the PCP initiative in terms of a general framework developed by the IPF for viewing the design and operation of an initiative. This model or framework is shown graphically in the diagram below.

Diagram 1: IPF framework for analysing an innovation support scheme

The general model is considered to consist of a service delivery system, which has three major cornerstones: the target groups for the initiative, the framework conditions and organisations within which an initiative must work, and the process by which the initiative operates.
Chapter 4 deals with designing a PCP initiative in the context of the first two cornerstones of the service delivery system: target groups and framework conditions/organisations.

Chapter 5 is devoted to the design of a PCP initiative for the third service delivery cornerstone: the process. The chapter is subdivided into five parts, one for each of the five stages of a pre-commercial procurement initiative, see diagram 2 below.

Diagram 2: The five stages of a Pre-commercial Procurement Process

1.2.1 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Used in report as</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-commercial procurement</td>
<td>The EU Commission definition of the concept is: “an approach to procuring R&amp;D services other than those where ‘the benefits accrue exclusively to the contracting authority for its own use in the conduct of its own affairs, on condition that the service provided is wholly remunerated by the contracting authority’ and that does not constitute State aid”.¹</td>
</tr>
<tr>
<td></td>
<td>The EU Commission also states: &quot;Pre-commercial procurement consists of a procurement of R&amp;D services that involves a risk-benefit sharing at market conditions and in which a number of companies develop in competition new solutions for mid- to long term public sector needs&quot;.² A PCP usually takes place in several phases, to handle risk.</td>
</tr>
</tbody>
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² Ibid.
<table>
<thead>
<tr>
<th>Pre-commercial procurement initiative/PCP initiative</th>
<th>Generalised expression in the report for the type of initiative that an innovation agency (or similar) can offer its target groups, with the aim to promote the use of pre-commercial procurement at public bodies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead body</td>
<td>An innovation agency, department or similar that deliver a pre-commercial procurement initiative to the “market” or innovation system.</td>
</tr>
<tr>
<td>Target group</td>
<td>The actors/ organisations to which a lead body directs its initiatives.</td>
</tr>
<tr>
<td>Public bodies</td>
<td>Generalised expression in the report for all public bodies that fall under the EU procurement directive and thus a target group for a PCP initiative (including private bodies with a public mission).</td>
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</table>
| Contracting authorities                             | Public bodies when engaged in a public procurement. "For the purposes of the Services Directive, the following are all contracting authorities:  
- the State,  
- regional and local authorities,  
- bodies governed by public law as defined below,  
- associations formed by one or more local or regional authorities or bodies governed by public law."  |
| Tender                                              | An official written offer from a potential supplier to a contracting authority that contains a cost proposal to perform the works, services or supplies required.                              |
| Tenderers                                           | The tendering companies, i.e. the potential suppliers that submit tenders.                                                                                                                        |

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3 Guide to the Community rules on public procurement of services other than in the water, energy, transport and telecommunications sectors directive 92/50/EEC.
2 Background: pre-commercial procurement

Sometimes a strong requirement arises for a product, service or solution that is presently commercially unavailable. For example, an organisation might identify an unmet need that is important for its future development, or society might for political reasons such as environmental protection want certain products to be offered on the market. For new products or solutions to appear on a market, however, development is needed. One strategy for encouraging this is to finance research and development (R&D) using calls to distribute grants in competition. Another approach is to contract R&D services: that is, perform a pre-commercial procurement.

Pre-commercial procurement means procurement of R&D services, or of the result of R&D, with the purpose of developing a new product or solution. It is usually conduced in several phases to manage risk. The R&D contracts cover the costs of the companies performing the R&D services.

Development of a new product or solution usually involves several phases: for example, development of an initial concept or idea, development of a prototype and development of test series. By procuring R&D-services for each phase one stage at a time, it is possible to end development early if the project does not look promising. This lessens the risk for the procuring organisation. The risk for the companies doing the development is also reduced, as they are compensated for their development work. Thus, a pre-commercial procurement (PCP) is usually conduced in several phases to manage risk.

Both commercial companies and public bodies can conduct PCPs. In the private sector it is done regularly, usually in large R&D-intensive companies, as a natural part of operations. The public sector however, is risk adverse and does not face the same need as private companies to constantly reinvent itself and its offerings. Also, public sector is governed by procurement laws, state aid rules and trade agreements that can be perceived as barriers for procuring R&D. Consequently, pre-commercial procurement is unusual in the public sector, even though it could be beneficial to public bodies under certain circumstances.

The idea of trying to increase the use of pre-commercial procurement in public sector purchasing can be viewed from different innovation policy angles. One is to encourage innovation management in the public sector; and another is to promote innovative SMEs. Several concepts of pre-commercial procurement have been developed - for example, by the European Commission - and taken form in initiatives and programmes, for example in the USA, the UK and the Netherlands.

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4 Rationales for encouraging public bodies to perform PCP are further discussed in section 3.2.
Below is an overview of pre-commercial procurement in the public sector within an EU context. We examine some legal aspects of a public body performing pre-commercial procurement in accordance with EU regulation. We review the concept of pre-commercial procurement as it is presented from an EU innovation policy perspective. Brief descriptions of the two existing pre-commercial procurement initiatives in the UK and in the Netherlands are outlined. Finally, we look at what differentiates PCP from grants and regular public procurement.

2.1 Legal framework

As mentioned before, a public body in need of a new solution has several choices for ensuring it development, depending on the specific situation. The public body can for example initiate an internal development project, using own personnel or hiring new staff or consultants with the right capabilities. Alternatively, it can use research and development grants to external organisations such as universities, institutes, private business or similar. Or, it may commission research and development services from companies, or buy the results of research and development from them. Depending on the choice, different legal frameworks are applicable.

Within the EU, pre-commercial procurement is in particular based on the procurement directives and the state aid rules.

2.1.1 Procurement directives

The EU Commission has defined a method which gives Member States the opportunity to procure research and development services before a final solution or product is commercialised (a product can be goods, services or a combination of goods and services). This method is called pre-commercial procurement.

In a PCP, a contracting authority that wishes to procure R&D services use an exemption in the EU procurement directives that is popularly called the R&D exemption.\(^5\)

To be able to cite the R&D exemption, a public procurement cannot include “commercial development activities such as quantity production, supply to establish commercial viability or to recover R&D costs, integration, customisation, incremental adaptations and improvements to existing products or processes”.\(^6\)

By using the R&D exemption, the pre-commercial procurement falls outside of the realm of the procurement directive. It is however still within the rules of the Treaty on

\(^6\) European Communities (2008), Pre-commercial procurement: Driving Innovation to ensure sustainable high quality public services in Europe. Page 2-3.
European Union, and the Commission is clear that a contracting authority that wants to conduct a pre-commercial procurement must follow the principles of the Treaty.7

Essentially this means that even though a PCP tender process uses the R&D exemption and is not subject to the EU procurement directives, it must still ensure:

- Equality of treatment (non-discrimination/ fairness). The contracting authority should take all the measures necessary to ensure that all tenderers, both potential and actual, are treated in an equal manner, without favour or prejudice. One example is that the tender documents should not contain specifications that favours or disfavours certain providers or solutions.

- Transparency (openness). When operating outside of the EU procurement directives, a contracting authority must still ensure that transparency is obtained. In practical terms, this means that some degree of advertising is likely to be necessary to demonstrate transparency. Also, it is important to make the formal set-up of the procurement clear to the tenderers, so that they understand the conditions for participation, selection criteria, award criteria etc. Other mechanisms to ensure transparency are public bid openings and objective bid evaluation criteria.

- Proportionality. Any measure chosen by a contracting authority should be both necessary and appropriate in the light of the objectives sought. Thus, specifications and terms of reference must be both relevant to the contract being procured and necessary.

- Mutual recognition. Member States contracting authorities are required to accept on their territory products which are legally produced and marketed, and services that are legally provided, in other Member States. The mutual recognition also covers documents that demonstrate qualifications, such as diplomas, certificates or other evidence of formal qualifications.

- Confidentiality. Contracting authorities are obliged to respect the confidentiality of the information received from tenderers during the procurement process. Afterwards, information may be disclosed.

Thus, it is not possible to specify that only companies of a certain size, or from a certain country or region, can tender in a PCP. In the Netherlands, the first PCP tender was only open for SME participation. However, after a letter from the EC and discussions with legal experts, other companies were also invited, since public procurement must be non-discriminatory.

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7 Primarily articles 18 (formerly 12), 49 (formerly 43) and article 56 (formerly 49), Treaty on European Union.
2.1.2 State aid rules

The discussion above on the procurement directive is relevant only if a public body procures research and development at a market price. If research and development is procured over market price, it means that the excess sum that the contracted company receives is a form of public financial assistance. This will normally be seen as constituting state aid within the meaning of the EC Treaty.

The objective of the EU state aid rules is to prevent public bodies, or publicly financed bodies, to enter into undertakings on a discretionary basis, with the potential to distort competition and affect trade between Member States.

The so called 'State aid rules', which are set out by the European Commission, cannot be found in a special law or similar. Instead, they comprise various articles of the Treaty on the Functioning of the European Union (TFEU), regulations, frameworks and guidelines, which set out which aid can be given. The main State aid article is number 107.1 (formerly 87.1).

For a scheme to be considered state aid, four basic criteria must be fulfilled (all four together):

* Public funds must be used,
* It is selective and affects the balance between certain firms and their competitors,
* It constitutes an economic advantage that distorts or threatens to distort competition, and
* It affects trade between Member States.

If a member state wants to initiate a scheme involving state aid, the Commission must be notified and give its approval. Without approval, state aid is viewed as unlawful. Any organisation that has received unlawful state aid may be subject to repayment.

A pre-commercial procurement initiative has to be carefully constructed so that it does not constitute state aid, i.e. that it does not fulfil all four of the above criteria. The first criterion is always fulfilled in a public procurement, but the other three should be avoided. PCPs should be open to all enterprises and all parts of the process must take place on market terms.

One feature of PCP is that supplying companies obtain intellectual property rights (IPR). If the future market value of this IPR is high, it can constitute state aid. The PCP set-up must alleviate this, for example by not funding 100% of company development costs, or by making companies financially compensate procuring organisations for obtaining IPR.
2.2 The concept of pre-commercial procurement in EU innovation policy

Within an EU context, the concept of public pre-commercial procurement has so far been interpreted in three similar ways: by the Commission, by the UK and by the Netherlands. The three interpretations are heavily interconnected, both regarding origin and structure. Below is a generalised description of public pre-commercial procurement from an EU policy perspective, describing common features of the concept.

Pre-commercial procurement is a method which public bodies can use to engage with a broad range of companies in competitions for ideas that result in short-term development contracts which introduce innovative solutions to specific public sector needs. Encouraging the use of PCP promotes the use of innovation in public bodies as a way to better service delivery and efficiency. It also aims to use the power of public procurement to accelerate the development of new solutions and innovation, as PCP supports projects through the stages of feasibility and prototyping which are typically hard to fund. PCP can also be used to promote the development of new solutions for social challenges (“grand challenges”).

PCP projects are development contracts at market price commissioned from innovative companies by public bodies. In essence contracting authorities invite companies in an open tender to develop products and services to help solve a given problem.

A PCP finances the most risky stages of a development, and result in clear deliverables in the form of products or services (new solutions) which will then be employed by the contracting authority. It is also possible to use PCP for catalytic procurement, which is a procurement process aided by a public body but made on behalf of end-users other than the public body.

PCP offers an invaluable opportunity for firms (especially early stage companies) to develop and demonstrate new solutions, supported by a major customer, and to achieve a valuable first reference site in the public arena. It is this unique combination of high risk R&D funding and a first reference site which makes the PCP approach such a valuable economic development opportunity. While each country that employs a PCP-promoting scheme may have different aims, from specific procurement applications to broad societal improvements, a central tenet of all versions is to improve the innovative capability of participating firms.

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8 The Commission has published a communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, called Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe, (SEC(2007) 1668), Brussels, 14.12.2007, COM(2007) 799 final. In the UK and the Netherlands, there are pre-commercial initiatives running that are described in 2.3.

9 Catalytic procurement: a public body encouraging the development of innovations or diffusion of new products or services through a systematic work on development and evaluation in order to influence the market.
There are usually several phases in any given PCP project, covering initial feasibility studies, more detailed product or service development and possibly also test series and field tests.\textsuperscript{10}

The diagram below is the Commission’s description of a pre-commercial procurement process.\textsuperscript{11}

Diagram 3: European Commission Description of the Pre-Commercial Procurement Process

The figure shows the PCP process as a funnel. A challenge is identified by a public body. This can be either a challenge for its own operations or in response to a social need. A tender is announced seeking solutions to the challenge and applications are sought and evaluated. After having won contracts in an open tender, several companies participate in the first phase of the PCP. After the end of the phase, the best of the solutions developed are chosen to move on to the next phase. No new tender is advertised and no new companies can enter the process at this phase.

\textsuperscript{10}The Commission recommends three phases. The initiatives in the UK and the Netherlands fund two phases.

\textsuperscript{11}European Communities, 2008, Pre-commercial procurement: Driving Innovation to ensure sustainable high quality public services in Europe. Page 8.
At the end of the last pre-commercial phase, new solutions have been developed and are ready to be offered to the market. The PCP is now at an end and a commercial public procurement can take place, where companies from the “funnel” compete with other companies in the market.

Pre-commercial procurement initiatives have characteristics which can make the scheme attractive to traditionally risk averse public bodies:

- The projects provide new solutions to existing problems and usually result in more “out of the box” thinking by smaller more innovatively agile companies. The scheme also provides the ability for procurers to reach a larger group of new suppliers with new ideas.

- Innovations are delivered in response to a defined problem and are often bespoke solutions which address the needs of the procurer more completely. In this way they are more valuable problem oriented or demand driven innovations.

- A PCP project is a contract to be delivered; it is not a grant and brings with it the requirement for the professional delivery of results.

- It is a unique approach; the PCP does not overlap or duplicate other mechanisms.

- A PCP scheme is more than just funding; there are also brokerage and coaching elements which result in better procurer-firm relationships which can result in better solutions.

A PCP project also raises the innovative capabilities of the participating companies. The following are some general characteristics of PCP within the EU context, which are important from the perspective of participating companies;

- It is generally quite a fast and simplified process that allows contracting authorities to engage with businesses they would not normally work with, typically SMEs.

- It should result in a new solution which addresses the problem set out by the contracting authority but which can then hopefully be commercialised in other markets by the company.

- The contracting authority acts as the lead customer and is instrumental in helping the business develop its new solution.

- The intellectual property is retained by the company, with certain rights of use held by the contracting authority.

- It is particularly suitable for SMEs and early stage businesses and gives vital funding for the critical stage of product development.
There is no definitive best delivery approach for how a country should organise the delivery of a PCP initiative. However a single lead body, in a country or region, with the right resources and capability, can foster strong interest and positive outcomes:

- As the PCP idea and model is novel, the lead body will need time to sell the initiative to public bodies.
- Not all problems are suitable for a PCP approach. A suitable problem should have no existing adequate solution and the solution should be a product or service and not merely a consultant’s report.
- Invitations to tender must be broad enough to attract interest and new suppliers who have not worked before for a public body.
- As with public procurement, PCP invitations to tender must be open to all companies in the EU both large and small.
- The source for project funding needs to be considered. Will it be a central budget managed by the lead body, funding made available from a contracting authority’s budget or perhaps a combination of a number of sources?
- While working within broad guidelines, the lead body will however need to take a flexible approach for each assignment which can be determined by the size, resource and experience of the participating organisation. As public bodies become more used to the pre-commercial procurement process they might wish to take on more responsibility in implementing the process.

2.3 Existing pre-commercial procurement initiatives

As mentioned previously, public sector use of pre-commercial procurement offers interesting possibilities from several policy perspectives. This has led to some countries establishing initiatives to encourage and support the use of pre-commercial procurement in public bodies.

The first pre-commercial initiative was launched in 1982 in the USA and is still running. It is called SBIR, “Small Business Innovation Research”. It is a complex programme (it contains considerably more than pre-commercial procurement, such as grants and complementing commercialisation initiatives), and different aspects of it have inspired many policy initiatives world-wide since its launch.12

During the first decade of the new millennium, two national initiatives were launched in Europe that was clearly inspired by the pre-commercial part of the US SBIR: the cases of SBRI in the UK and SBIR in the Netherlands.

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2.3.1 SBRI – the UK

In the UK, the government introduced its “Small Business Research Initiative” (SBRI) in 2001. Initially, the idea was to provide a web portal where government departments could advertise R&D contracts. The overall target was for £50 million to be spent that way, but there was a low level of interest from departments and the programme never came even near its target spend.

The SBRI initiative was revamped in 2005-2006, with the introduction of a mandatory SBRI spending target, but to little avail. The initiative was still unsuccessful. Some critics complained about SBRI being ‘a small business tax’. Others pointed out that the SBIR process was not established, even though this was considered a key success factor in the USA. Additionally, SBRI was marketed primarily as an innovation tool to promote SMEs. This did not appeal to the departments that were targeted to use SBRI – naturally, these departments cared most about performing their own tasks and achieving their own goals. Essentially this version of SBRI was not seen as a win-win initiative.

In 2008-2009, the SBRI initiative was changed again. It is now run by the Technology Strategy Board, TSB, a non-departmental public body. The official re-launch took place in April 2009. This time, the SBRI programme and pre-commercial procurement was presented as a tool for solving the needs of government departments, and also for driving innovation by providing business opportunities for innovative companies.

The rationale for the SBRI (UK) initiative

As stated on the TSB homepage:

Benefits to business

It can be difficult and confusing for companies to access government departments and to obtain simple contracts with them. SBRI creates opportunities for businesses to engage with a specific department need and to prove their technology or idea. Successful companies will gain a lead customer for development and will receive a contract for the full cost of demonstrating the feasibility of their technology, leading to subsequent prototype development. This provides a route to market and establishes credibility for further investment. It is particularly suitable for small and medium-sized enterprises and early stage companies.

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Benefits to government

SBRI supports the public sector to procure innovative solutions that address current significant department needs. It enables departments to appeal for a wide range of ideas and evaluate these through short-term simplified contracts and a two-stage development process. This allows government departments and public sector organisations to engage with a broad range of companies they would not otherwise work with. It results in bringing new technologies to market faster and with managed risk.

In the new version of SBRI, the TSB aids public bodies to perform pre-commercial procurements to meet certain challenges that the public bodies have identified. The challenges are phrased in terms of the functions required from a solution as opposes to the technical details of a solution.

The PCP process takes place in the form of competitions (calls) for new technologies and ideas. The competitions aim to engage a broad range of companies in short-term development contracts. There are two phases: initial feasibility and more detailed product development. It provides companies with fully funded contracts for the critical stage of product development. The IPR stay with the companies.

To encourage departments to formulate needs into demands, all government departments are required to prepare an Innovation Procurement Plan as part of its commercial strategy. The plans addressed the issue of innovation and procurement processes.

Even though it is early days yet, indications point towards the new version of SBRI being a success. In the 20 months since launch, 43 competitions have been run, involving 18 government departments and agencies. Over 1600 applications for a development contract were submitted and over 500 contracts have been awarded, with a total value of more than £35 million.

The SBRI initiative was constructed with SMEs in mind, but under EU regulations public procurements cannot be restricted to certain types of companies (e.g. national SMEs). All companies are thus eligible to tender for SBRI contracts. However, over 80% of contracts have so far been awarded to SMEs, and over 40% to micro companies (less than 10 employees).

SBRI topics have ranged across a wide spectrum with most falling in the area of operational effectiveness. Examples include the Department of Health looking for better means of detecting pathogens and improving hand hygiene, and the Ministry of Defence looking for major reduction in the 70 kilograms of weight that soldiers have to carry into combat. There have also been a number of policy related competitions, such as the
Home Office running a competition to find solutions to reduce mobile phone theft under the design out crime initiative, or the Department for Environment, Food and Rural Affairs running a competition to develop highly efficient domestic lighting solutions with zero mercury under sustainability initiatives.

Experiences from the SBRI (UK) initiative will be presented throughout this report when appropriate, to throw light on design options and recommendations.

2.3.2 SBIR – the Netherlands
The Dutch government started experimenting with a small scale “Small Business Innovation Research” (SBIR) pilot programme in 2004, inspired by the US SBIR programme. The results were promising and the initiative has grown steadily since then.

The initiative is run by NL Agency, a department of the Dutch Ministry of Economic Affairs, Agriculture and Innovation that implements government policy for sustainability, innovation, and international business and cooperation.

The rationale for the Netherlands’ SBRI initiative

| The goal of the Dutch government with the SBIR programme is threefold: |
| - Solving public questions and concerns |
| - Stimulating innovation among SMEs |
| - Valorisation of public knowledge |

The unique feature of the SBIR programme is that the contracting authority fully funds the first two phases, whilst the resulting intellectual property remains with the company. This way, especially SMEs are encouraged to become more innovative. The resulting new products and services give companies the chance to grow and in doing so to create new jobs. At the same time the involved government gains a variety of innovative solutions to its problems.

The process begins with the Netherlands government inviting companies in an open tender to develop a product and/ or service to help solve a specific social issue. By using an open tender, the government challenges not only “the usual suspects”, but also companies that wish to innovate but lack the financial means to do it on their own.

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14 NL Agency was recently created by a merger. Before this, the SBIR initiative was located at SenterNovem, one of the agencies involved in the merger.
Contracts are awarded in a two-phase competition: 1) feasibility, and 2) research and development. There is also a commercialisation phase that is not financed or supported by the SBIR initiative. The feasibility phase comprises a study into technical, economic and organisational feasibility of a project idea and initial technical experiments. The maximum duration of this phase is six months. The second phase comprises R&D up until a first, non-commercial prototype. The maximum duration of the phase is two years. The process relies on simple procedures and a short time to contract (6-8 weeks after deadline submitting proposal).

Since the start of the SBIR initiative, 28 challenges have been launched by seven different ministries. More than 1 000 phase 1 proposals have been assessed and more than 250 phase 1 contracts, and almost 60 phase 2 contracts, have been issued so far.

The SBIR themes are defined by ministries and within ministries, usually within strategic innovation agendas. For example, within the Ministry of Transport, Public Works and Water Management, there is a strategic innovation agenda on the subjects of mobility and water. This agenda defines the need for an SBIR approach. Also, SBIR can be part of a wider ranging interdepartmental MIA (societal innovation agenda).

Experiences from the Dutch SBIR initiative will be presented throughout this report when appropriate, to throw light on design options and recommendations.

2.4 Grants, PCP and regular public procurement

PCP is not a replacement for R&D grants or regular public procurement, but an activity complementary to both. Grants, PCP and regular public procurement can be seen as different strategic options for getting new desired solutions developed (and, in the case of PCP and regular public procurement, available on the market). PCP constitutes a middle way between R&D grants and regular procurement. Below are some different perspectives on R&D grants, PCP and public procurement.

*Estimated time-to-market*

When needs are identified for which market solutions appear to be far away, traditional R&D support in form of grants is suitable. Procurements would be a bad alternative, since they are difficult to handle and administer if finished solutions cannot be expected on the market in less than three or possibly four years (low technology readiness levels).\(^{15}\)

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\(^{15}\) "A measure used by some US government agencies and many of the world’s major companies to assess the maturity of evolving technologies (materials, components, devices, etc.) prior to incorporating that technology into a system or subsystem." [http://en.wikipedia.org/wiki/Technology_readiness_level](http://en.wikipedia.org/wiki/Technology_readiness_level)
If, on the other hand, it is likely that producers can develop new solutions in a short time, it is viable to procure the solutions commercially in one single step using a regular procurement procedure.

Pre-commercial procurement is suitable for solutions that are too far from market to be directly procurable, but can reasonably be on the market in three-four years.

**Safety and speed of delivery**

Pre-commercial procurement projects can be started very quickly, because they are founded on a different legal framework from both a grant initiative and a regular public procurement. The whole process, from idea to publication of the tender documents, can be done in a few days.

Also, pre-commercial procurement projects are *assignments with clear outputs that must be delivered*. The whole process is geared to produce clear, tangible and quick results. Companies feel the obligation to deliver and contracting authorities are comfortable in demanding results. As a result, the involvement of contracting authorities in the supplier’s development project is larger in PCP projects than in grant projects.

PCP contracts reflect the commercial nature of the transaction, and represent a firmer way of working than using grants. It encourages a partnership approach and public bodies act like intelligent lead customers. Even though grant projects could, in theory, demand the same sort of commitment and results that paid assignments do, experience shows that this is seldom the case. Also, companies can use contracts to raise financing, which increases the possibility of developing good solutions.

Regular procurements procedures have the same effect on speed and safety of delivery as PCP, but are unsuitable for development projects with a need to manage high risks. Further, PCP also allows greater freedom to discuss with suppliers than the regular procuring procedures, providing the opportunity for closer cooperation.

Pre-commercial procurement is suitable for ensuring speedy and safe delivery in development projects with a certain amount of risk.

**Challenge perspective**

PCP uses functional specifications and formulates challenges, rather than specifying outright which type of (technical) solution is desired. Also, the PCP process takes special care so that conditions and eligibility criteria do not exclude new or small companies. This opens up PCP to new suppliers and increases the innovation potential. Compared to many regular public procurements, a PCP often attracts tenders from companies outside of “the usual” suppliers.
Another advantage with using challenges is that several complementary concepts for innovative solutions can be offered by suppliers, rather than many competing solutions.

To be useful, a challenge needs to address areas characterised by clearly defined problems that can be solved by the introduction of new solutions, technologies or products. If this basic condition is not met, a PCP is difficult to handle and R&D grants are a better choice.

**Level of reimbursement for developing organisations**

In a grant project, only a part of the project is financed. This can be troublesome for some organisations (most notably start-ups and SMEs) that might be unable to provide their part of the financing. Also, companies may be afraid of the risk level of part-financing (for example in situations where the gain for society of the new solution is significant while the business case for the company is uncertain at best). A low level of reimbursement to the developing organisations can make it hard to engage start-ups and SMEs that might have produced interesting solutions.

If a development project needs to harness the innovative potential of small innovative companies or start-ups, a PCP is suitable. The same is true for the development of solutions to social challenges, where the potential gain is uncertain for the participating innovative companies.

**Budget perspective**

R&D grants are usually financed from the budgets of innovation agencies or research foundations or similar. In addition, large public bodies such as departments, sector agencies and other authorities with sector responsibilities usually have budgets that can be used for R&D grants. These development budgets represent investments in R&D which are expected to carry risk.

Regular public procurements are financed via purchasing budgets of public bodies. Such budgets are often short-term. There is in general a resistance to using purchasing budgets for risky procurements, and strong incentives for not wasting tax-payer’s money. Goods and services bought with purchasing budgets in a commercial procurement are expected to work well and not incur high risks.

The idea behind PCPs is to manage risks in development projects where the outcome is important to fulfil prioritised needs of public bodies. The costs for performing a PCP are higher than in the case of traditional procurement, so it might not be possible to fund it solely from purchasing budgets. Additional funds can be taken from development budgets, either at the public body or by an innovation agency, department or similar. On the other hand, the development of innovative solutions in PCP should answer to real needs of public bodies and thus purchasing budgets should be used to some extent.
Conclusion

Pre-commercial procurement is not a solve-all tool. It is however a good alternative when the creativity of suppliers, including small entrepreneurs, is to be harnessed for the development of products, services or processes that solve clearly defined problems for which there is a concrete need. Suitable development projects for PCP should have an estimable time-to-market around three years and contain risks that can be mediated by dividing the development process into phases.
3 Designing a pre-commercial procurement initiative

The concept of pre-commercial procurement has received much interest from politicians and civil servants concerned with innovation and national and regional development. It is however little used by public bodies for several reasons.

First, not every public body systematically considers its need for innovative solutions. Procurement in such public bodies rarely, if ever, involves procuring innovative solutions and the need for a method to procure innovation is not felt. Secondly, if such a need does arise, pre-commercial procurement is not a favoured tool for public procurers, since it is a new concept and legal interpretation in a court of law is lacking. Procurers feel that they have little to win by taking risks using a new procurement method, especially if there is no previous national experience of using it, and if guidelines and recommendations at country level are lacking.

To summarise: public procurers are rarely asked to procure an innovative solution, but if they are, they usually choose other procurement methods. Still, as was seen in chapter 2, PCP has advantages in certain situations and should be put to use when appropriate. To increase uptake of pre-commercial procurement two issues must be addressed: the lack of incentives for public bodies to procure and implement innovations, and the lack of knowledge about how to use the pre-commercial procurement method. One way of creating incentives is for an innovation agency, department or similar – that is, a lead body – to launch a pre-commercial procurement initiative.

As can be seen from chapter 2, such initiatives already exist in the EU, from which inspiration can be drawn. Existing models cannot however be exactly copied from one setting to another without difficulty. There are thus many different options for designing an initiative to further the use of pre-commercial procurement.

In this section, some starting points will be discussed.

3.1 Vision, rationale and goals

The rationale for creating a PCP initiative is usually based on all, or a combination of some, of the following arguments: 16

- To promote the service delivery and efficiency of public bodies through the procurement, implementation and use of innovations in said bodies.
- To address social challenges by using public procurement of innovation to introduce certain required innovative products on a market.

16 Here, the arguments are expressed in general terms. For real examples, see the SBRI and SBIR rationales cited in section 2.3.
• To support the growth of competitive innovative companies, especially SMEs, with the aim to increase long-term economic growth.17
• To use tax payer’s money wisely in public procurement (i.e. avoid cementing markets and other undue market influences, and create demand for innovative products).
• To create better return on investments in R&D (public and private), by using public procurement to aid valorisation of knowledge and commercialisation of research.

When creating a PCP initiative, it is important to be aware of the specific arguments that the initiative should target. It is also useful to sort out which of those arguments is the “prime mover”.18 These decisions will influence the whole design of the initiative.

The formal statement of the rationale needs to make sense to several groups, both to the policy environment that is supporting and/ or sponsoring the initiative, as well as to intended target groups. The rationale needs to speak to different stakeholders and reflect their different goals.

3.2 PCP initiative flowchart
The design of a PCP initiative can be aided by using the flowchart from Diagram 2 (shown again below). This is an example of a flowchart for a PCP initiative constructed on the basis of the experiences in the Netherlands and in the UK. In the figure, a PCP initiative is divided into five stages.

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17 This argument has several subdivisions, for example giving companies the opportunity to develop and demonstrate technology supported by a customer, and to reach SMEs that are not potential clients of state aid schemes.
18 Where will the first results take place and what further direct and indirect impacts are expected follow from these first results? The “first mover” argument for creating the initiative might not necessarily be the most important rationale, but it is useful to be aware of the timeline of wished-for impacts.
The activation stage denotes formal activities to launch and activate a PCP initiative, after the design is finished and it is ready to be implemented. It can for example include structured activities to market the initiative.

After that, in the identification stage, needs suitable for a PCP are identified and transformed into a concrete requirement. The stage ends with the design of a tender specification, for example in the form of a specific challenge to be solved.

The pre-commercial procurement actually takes place in the PCP stage (this stage is equivalent to the EU Commission’s PCP concept as shown in diagram 3). The PCP stage typically contains several phases, which divide the procurement process into awarding contracts in two or three phases at different times, procuring for example first a concept, then a prototype and lastly a test series.

After the PCP process has finished, the commercial stage begins. The new solution/solutions that were gradually procured in the PCP stage can now compete along with other solutions on the market, according to normal commercial public procurement regulations.

The follow-up stage is not a stage as such, which starts after another has ended. Rather, it is a continuous activity that contains all the activities that comprise a general follow-up approach. Such an approach includes short term monitoring, medium term evaluations and usually also long term impact analysis.

### 3.3 The role of the lead body

When designing a PCP initiative, a lead body needs to decide what role it proposes to play to further the use of pre-commercial procurement. There are many possibilities:

- Will the lead body offer a ready-to-use PCP process, including support, to public bodies? (That is, help public bodies to act as contracting authorities in a PCP)?
- Will the lead body also distribute grants to public bodies for performing a PCP, i.e. finance part of the public body's costs for the PCP? If so, will eligible costs be PCP process costs, or also include part of contracting costs?
- Will the lead body offer to perform procurements on behalf of public bodies (that is, have the contractual relationship with the companies)?

The possible roles and activities need to be kept clear, as they will impact the design of the initiative. To do this, one approach is to expand the PCP initiative flowchart to include roles of different actors, and then use it to think through different alternatives. An example of lead body roles is shown in diagram 4.
Diagram 4: Example of the roles which could be played by a lead body in a PCP initiative

<table>
<thead>
<tr>
<th>Activation stage</th>
<th>Identification stage</th>
<th>PCP stage</th>
<th>Commercial stage</th>
<th>Follow-up stage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead body</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launching and marketing initiative. Finding public bodies and activating them. Optional: awarding grants to public bodies.</td>
<td>Supporting public bodies in identifying and phrasing needs and demand for innovations that can be addressed through a pre-commercial procurement.</td>
<td>Supporting public bodies to perform or participate in PCPs or implementing (parts of) PCPs on behalf of public bodies. Supporting SMEs to participate in PCPs.</td>
<td>Optional: Providing implementation support to public bodies and commercialisation support to SMEs.</td>
<td>Monitoring, evaluating and performing impact analysis of PCP projects and PCP initiative itself.</td>
</tr>
</tbody>
</table>

**Follow-up phase: ongoing**

<table>
<thead>
<tr>
<th>Public bodies</th>
<th>Innovative companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express interest to participate in PCP. Optional: Apply for grants for PCP participation.</td>
<td>Participating in PCP (tendering for contracts, delivering according to contact).</td>
</tr>
<tr>
<td>Identifying needs.</td>
<td>Commercialising results of PCP projects.</td>
</tr>
<tr>
<td>Transforming needs to PCP demand.</td>
<td>Follow-up of innovation project.</td>
</tr>
<tr>
<td>Performing or participating in PCP.</td>
<td>Follow-up of PCP project.</td>
</tr>
<tr>
<td>Performing commercial procurement. Implementing innovation.</td>
<td></td>
</tr>
</tbody>
</table>

In the activation stage, the role of the lead body is to *reach the target group*: that is, public bodies interested in performing a pre-commercial procurement. For this, a marketing plan is needed. An optional role for the lead body is to offer financial support to public bodies that decide to use PCP.

In the identification stage, the role of the lead body is to *design tools that help public bodies to identify their needs and transform the needs into concrete demand*. The lead body can for example offer guidelines for the process.

In the PCP stage, the lead body role is to *give support to public bodies that perform PCPs in several phases*. There are many options and possibilities for the lead body regarding what sort of support to offer: from guidelines, set contracts, IP-strategies and IT-systems for handling contract applications - up to actually performing the procurement on behalf of a public body. Another important role for the lead body is to provide support to innovative companies that want to apply for contracts.
After a PCP is performed, the public bodies must decide whether to go ahead with a commercial public procurement and (possibly) implement the innovation in their organisations. Innovative companies must commercialise their new solution. Evidence suggests that this stage is hard for both public bodies and SMES. A lead body might consider providing some form of *commercialisation and implementation support, both to public bodies and to SMEs*, in a bid to increase the number of successful projects in the PCP initiative.

The follow-up stage is, as mentioned before, an ongoing activity. For the lead body, this includes *monitoring single projects, and evaluating the initiative as a whole*. The follow-up approach should be designed by the lead body at the outset of the initiative, before it is launched, and put in place as soon as the activities begin. Participating public bodies and innovative companies should preferably also do follow-up from their own viewpoint. An option for the lead body is to support them in such endeavours, for example with methodology.

### Role of the lead body in SBRI (UK) and SBIR (NL)

In the UK, the role of TSB depends on the type of PCP challenge. If a public body describes a challenge where its solutions would have societal benefits outside of the public body, a greater involvement from TSB makes more sense. If the challenge is rather operational in nature, it is more natural that the public body itself drives the process. TSB offers a whole range of possible support depending on the case.

In the Netherlands, NL Agency keeps its role flexible. NL Agency gives advice or implements the PCP process depending on the specific case. A rule of thumb is that the public bodies must take at least part of the process on themselves.

Budget issues are connected to the question of role of the lead body. For example, which organisation will provide the funds for the PCP contracts to the innovative companies, once the PCP stage has started? – should the public bodies themselves pay, or should the contracts be financed partly or wholly by the lead body? The answer to this question is critically important for the budget needed by the lead body for its PCP initiative.

When a lead body becomes more experienced in promoting PCP, it might wish to change its role. For example, as public bodies become more used to performing PCPs, their need for support in the PCP stage should lessen. A lead body can then pull back on its PCP stage support and instead focus on the identification and commercialisation stages.
An option for deciding on scope and budget for a PCP initiative is to start with a pilot and later scale up the pilot to a full programme. This approach was taken by both the UK and the Netherlands. For example, the UK started with an initiative limited to the public health-care sector first before expanding to other sectors and a larger budget.

In the Netherlands, a pilot phase was performed based on a dedicated budget from the Ministry of Economic Affairs: the Ministry co-financed 50% of the costs of the first six pilot SBIR competitions. The ministry was also instrumental in motivating other departments to try out SBIR. Some ministries (for example agriculture and transport), which had their own budgets for R&D, were very enthusiastic and also helped to motivate others.
4 The service delivery system

The service delivery system, or the context within which an initiative is delivered, can be considered to consist of three cornerstones:

- **Target group**: Who are your direct target group/s?
- **Framework conditions & organisations**: Within what framework conditions are you delivering your service/ initiative, and what organisations, other than the target groups, are stakeholders – what role do they play?
- **Process**: What process will be used to deliver the service?

This chapter will discuss the first two cornerstones of the service delivery system: target groups and framework conditions and organisations.

4.1 Target groups

Target groups refer to those parties at which the lead body aims its initiative: that is, the intended recipients of the PCP promotion support which the lead body designs.

For a PCP initiative, the firsthand target group is public bodies (contracting authorities). It is important to spread information about PCP to this group, and to provide incentives for its members to set up PCPs. In a larger perspective, public bodies may benefit from general innovation management support, for example to be able to identify and prioritise needs and decide upon methods for filling those needs.

A second target group of a PCP initiative are potential suppliers of innovative solutions. The quality of a PCP project will depend on engaging as many suppliers with innovative ideas as possible. To ensure this, a lead body can consider designing specific activities for innovative companies. Especially SME participation in PCP might benefit from offering advice on how to participate in public procurements.

Also, via the PCP contracts, innovative companies are indirect benefactors of PCP initiatives. A PCP call for tender cannot be open only to certain companies, but the design and characteristics of the call can be designed to appeal specifically to target company types. In the UK and NL, there has been a majority of SMEs both tendering and receiving contracts in PCP projects, which could be partly attributed to design choices.

Other target groups for a PCP initiative are policy makers with power over public sector investments, and intended users and end users of innovative solutions procured in PCPs. Such users and end-users can be found both in the public sector and externally in society. These target groups should be carefully considered, but will not be discussed separately in this report.
4.1.1 Public bodies

The first-hand target group is public bodies with needs that can be filled by procuring the development of innovative solutions. The public bodies should be contracting authorities according to Directives 2004/718/EC and 2004/17/EC. This includes state, regional and local authorities, as well as bodies governed by public law (including also associations formed by several such authorities or bodies).

A lead body might wish to limit its target group and for example focus solely on public bodies with their own designated research and development budgets, or only on national authorities. In the SBIR (NL) local and regional authorities are not (yet) a part of SBIR programme. Those public bodies could however become target groups in the future, as large amounts of procurement activities take place on the regional/local level. In the SBRI (UK) programme, the target group include departments (i.e. ministries), but also other contracting organisations like hospitals etc. Although there are no limitations by legal framework, neither the current SBIR nor SBRI schemes include limited companies owned by the state as a target group.

Once the exact target group has been decided, the lead body must decide what support to offer to the public bodies. Certain supports might be more resource-intensive for the lead body, but on the other hand might promote the initiative better.

The decision of what to offer public bodies needs to take into account:

1) what types of support and incentives the public bodies need,
2) what, if any, supports are already available elsewhere, and
3) the resources of the lead body for a PCP initiative.

The support offered by a lead body may vary within a single country, depending on the needs and wishes of the public bodies. Some public bodies may wish to implement PCP processes on their own, while others may want the lead body to sign procurement contracts on their behalf.

Below are different kinds of support that a lead body can offer to public bodies interested in performing pre-commercial procurement.

- **Advisory support**
  - i.e. information, guidelines, templates, help desk etc.
- **Costs support**: grants to cover (part of) process costs of a public body
  - i.e. costs for setting up a tender process and administrating a PCP
  - i.e. payments according to contracts to companies for R&D services
- **Performance support**: performing a PCP on behalf of a public body,
  - i.e. the lead body becomes the contracting authority instead of the public body.
Apart from these types of PCP support, a lead body might also offer support for the stages before and after the PCP stage, such as innovations management (to identify needs and challenges) and implementation support (to aid the implementation of innovative solutions in the public body).

Advisory support

Depending on the availability and quality of “general” public procurement support in a country, the need for advisory support might vary significantly. The level of prior use of PCP-like methods among public bodies will also influence the level of support needed. Target group needs and framework conditions should be examined.

In many countries, PCP is new and unusual. The need for advice can be substantial and providing it can require considerable resources from a lead body. One possibility to try is to find possible partners with which to provide advisory support. A lead body can also try to support the emergence of market alternatives for advice (i.e. private procurement consultants with PCP knowledge). Both the UK and NL provide broad advisory support.

Process and contract cost support

The availability to fund (part of) the costs of a PCP is a strong incentive to get public bodies interested and to make PCP an appealing instrument for promoting public sector innovation. Cost support obviously requires an adequate initiative budget, but it need not be too demanding in terms of lead body personnel needed to run the initiative.

In the UK and the Netherlands, cost support is combined with advisory support. Another approach is to focus on distributing grants and letting the public bodies themselves find and buy advisory support on the market. Tekes in Finland, for example, has a procurement scheme (not PCP) which offers only financial support. This is possible as market alternatives exist for innovation procurement advice. Tekes are thus able to run its initiative with few staff resources.

Example

Example of support to public bodies: case Finland/Tekes.

Funding available for the procurement unit for preparation of an innovation procurement tender process up to 70 %, max. 100 k€ to define needs, to define how to evaluate tenders, to solve other relevant issues in preparing the call for tenders, inc. buying competence if needed.

Funding available for the R&D&I expenses of the procurer max. 1 Mio. €
The funding principles for cost support can be designed with the help of the following questions:

- Are all contracting authorities that intend to do a PCP eligible for financial support by the lead body?
- Is funding granted for *process costs* or for *contractual costs* of the PCP - or for both?
- What is an appropriate level of cost support - the most effective and efficient level of funding? 100% funding of expenses is possible, but is it suitable? Willingness to invest financially shows that a public body is committed and genuinely interested in the results of the PCP. Without such commitment, the chances lessen that a PCP is followed by a commercial procurement. The appropriate level of funding also depends on whether the public bodies have research and development funds, the specific challenge to be solved and the other available support to public bodies.

**Performance support**

The most resource-intensive support that a lead body can offer is implementing pre-commercial procurement processes on behalf of public bodies. The set-up of the lead body must be quite substantial to be able to function as the contracting authority, especially on behalf of several different public bodies.

Advantage with the approach includes lower costs for the public bodies, which lowers their barriers for PCP. On the downside, public body learning will be lower if it does not itself act as the contracting authority. Also, it can indicate insufficient commitment from the public bodies.

### 4.1.2 Innovative companies

According to the EU procurement directives, public procurement cannot discriminate against certain group of companies. Therefore, all enterprises are an indirect target group for PCP-promoting initiatives and are welcome to compete for contracts. It is however still possible for a lead body to especially target certain types of companies, for example by setting up support activities directed towards them.

Pre-commercial procurement aims first and foremost at getting the best solution for the public bodies. To ensure this, a lead body needs to attract companies with the ability to develop innovative solutions to tenders for PCP contracts. Small and medium sized companies are one important group of innovative companies to engage, since SMEs have much un-commercialised innovation potential. SMEs might however need support regarding how to handle the administrative aspects of a public procurement. Such support can include practical guides and a helpdesk etc.
Lack of familiarity with public procurement is not the only thing that can stop SMEs from participating in PCPs. The set-up of public procurements can also hinder their participation, for example due to administrative burdens and costs of participation, or onerous financial requirements used as qualification criteria. A lead body should make sure that all PCP projects are set up in a way that does not impose barriers for SMEs.

If an SME is successful and develops a new solution in a PCP process, the company needs strategies in place for how to handle the commercialisation phase later on (expanding, forming partnerships etc.). Therefore, it is recommended that a lead body considers how to provide SMEs early on with information about commercialisation support that might already be available in the innovation system.

The UK and NL experiences of pre-commercial procurement demonstrates that PCP is an attractive offer for SMEs, see below.

**NL: Small companies constitute the majority of clients in SBIR**

The statistics from the 209 projects submitted for Phase 1 (Feasibility Studies) competitions until the end of March 2009 show the following breakdown by company size:

<table>
<thead>
<tr>
<th>Size</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>62%</td>
</tr>
<tr>
<td>11-20</td>
<td>11%</td>
</tr>
<tr>
<td>21-50</td>
<td>12%</td>
</tr>
<tr>
<td>51-100</td>
<td>5%</td>
</tr>
<tr>
<td>101-250</td>
<td>2%</td>
</tr>
<tr>
<td>&gt;250</td>
<td>8%</td>
</tr>
</tbody>
</table>

The majority (>90%) of contracts go to SMEs. 62% goes to micro companies.

**UK: Micro companies benefit from SBRI**

By focusing on an innovative solution to the challenge, outreaching to the right community and making sure the process is simple and appropriate we get the majority (>85%) of contracts going to SMEs and a significant amount of those (~50%) to micro companies (<10 people).

In both SBRI and SBIR, large companies are often too expensive and try to sell solutions that are already in development, rather than looking for what a challenge demands. Also, SMEs are risk tolerant. Large companies are driven by their existing products and customers and tend to fear that additional offers can destroy current business cases. Thus they incline towards incremental innovation, not to disrupt supply chains and customers. Further, large companies can be slow to answer PCP calls for tenders.
Another possible PCP initiative target group, which usually overlaps significantly with SMEs, is early stage companies. The EU State Aid Framework has no specific tools to serve such enterprises. In the case of the SBRI (UK) and SBIR (NL), outreach is broad and channels are used that should reach early stage companies. SBRI and SBIR also make sure that the PCP process is simple and thus encourages early stage companies to tender for contracts. Also, it is ensured that the process does not accidently filter them out (many processes for grant and contract have due diligence processes that will filter out companies with no trading history, or negative cash flow etc).

4.2 Framework conditions and organisations
In the process of creating a pre-commercial procurement initiative, a lead body will usually engage in external collaboration. The aim is to create support for the upcoming initiative in the innovation system, and to plan and create cooperation with other stakeholders.

External collaboration does not equal activation. The activation stage takes place once planning and design of an initiative is finished, beginning with a formal launch where structured marketing activities are rolled out and calls are opened etc. To prepare for a successful activation stage, collaboration activities should begin much earlier, during the construction of the initiative.

4.2.1 Creating support and interest in the innovation system
It is important to create early support and interest for a pre-commercial procurement initiative in its intended environment. This will ensure that relevant actors understand and buy into the concept even before it has been launched, and might also lead to helpful input into the design process.

There are several benefits to creating support and interest for the initiative early on, before it is being launched:

- To prepare the system for the coming initiative – a sort of pre-advertising scheme
- To create support for the initiative that might be needed later, for example in budget discussions with policy makers (lobbying)
- To provide useful input into the design process
- To identify and handle potential conflicts of interest
- To introduce success stories from international practice
- To initiate networks of interested parties and stakeholders, in preparation for future collaboration as appropriate (see 4.2.3)
Creating support and interest involves presenting and explaining the concept of pre-commercial procurement to different groups. The message might need to be tailored to different audiences depending on the situation.

Stakeholder discussions can lead to valuable input into the design process of the initiative, but can also be time consuming. One risk is that the discussions become too consensus-oriented: if a lead body tries too hard to please all stakeholders, no matter how different their views are about what the initiative should contain, the initiative might end up watered-down and lose its potential.

4.2.2 Considering existing initiatives
Pre-commercial procurement initiatives are launched into specific contexts. There can be other actors within the innovation system that offer services similar to a PCP concept, or that performs activities with a similar aim and rationale. There might also be existing initiatives present in the innovation system that are complementary to a pre-commercial procurement initiative.

It is important to relate to existing initiatives and be clear on similarities as well as differences between these and a new PCP scheme. Be certain of how the new initiative is unique. This will facilitate the design of the new initiative. Look for both similar and complementary existing initiatives.

**Swedish example: The Energy Agency**

In Sweden, the Energy Agency has a long tradition of performing so called "technology procurements". This is a form of catalytic procurement that centres on purchasing groups. It is used to promote incremental innovation and is motivated by a societal need: to lower energy use.

The initiative is well-established and has yielded good results. Therefore, a Swedish pre-commercial procurement initiative needs to differentiate itself from technology procurement, and/or look for cooperation possibilities.

4.2.3 Creating co-operation with other stakeholders
Another important consideration is finding suitable collaboration partners for different parts of the PCP initiative, such as reaching a wide range of innovative companies that can compete for contracts. Finding the right collaboration partners will be important for the success of the initiative.
In the SBRI (UK), different networks are used as a channel for advertising calls for challenges, in order to reach as many innovative potential contractors as possible. One example is collaboration with a network of universities, which is used for distributing the dates and content of calls. Another benefit with collaborating with universities is that it facilitates finding capabilities at university for evaluation of technical aspects in proposals.

Stakeholders that are potential partners usually need to be identified and approached early, preferably before/ during the detailed design of the initiative.

Examples of stakeholders and possible areas of collaboration:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Area of collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition authority</td>
<td>Advice on competition regulation</td>
</tr>
<tr>
<td>Public bodies involved in supporting public procurement</td>
<td>Advice on procurement regulation and practices, co-operating to provide common advisory PCP support to public bodies and SMEs</td>
</tr>
<tr>
<td>Innovation system actors with similar initiatives</td>
<td>Achieve coordination with similar initiatives</td>
</tr>
<tr>
<td>University networks, institute networks</td>
<td>Defining PCP challenges and evaluating tenders</td>
</tr>
<tr>
<td>Associations for municipality cooperation</td>
<td>Access to channels for reaching out to public bodies</td>
</tr>
<tr>
<td>Science park networks, networks for innovative SMEs</td>
<td>Access to channels through which innovative companies can be informed of PCP opportunities</td>
</tr>
</tbody>
</table>
4.2.4  Ensuring compliance with the lead body’s legal framework
Lead bodies such as innovation agencies, ministry departments or similar operate under different national legal frameworks and in a specific regulatory environment. It is important to ensure that the planned support fits within this regulatory framework, so that a PCP initiative is planned according to what the lead body is allowed to do (for example, which type of organisations it can support, and how). Special design of the initiative might be needed depending on the legal situation in a specific country.

The lead body’s legal framework might not be a problem: in the UK for example, no such issues have arisen in connection with the SBRI scheme. It is however recommended to check for potential problems with the lead body’s legal framework before the design of the initiative has become very detailed.

4.2.5  Performing a risk analysis
Another activity that should be performed early on in planning a PCP initiative is to perform a risk analysis for the initiative. A lead body is recommended to do this before the detailed design of the initiative. The risk analysis should concern what will happen if the initiative does not work as planned and possible stumbling blocks.

Risk analysis can be a complicated exercise, but it does not have to be. One method is to make a table detailing possible risks, and then rank the likelihood for them occurring and the consequences if they do.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Likelihood of occurring (on a scale)</th>
<th>Consequences (on a scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little/ no take-up by public bodies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key capabilities leave lead body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of funding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One consequence that needs to be avoided is damaging the reputation of the lead body, but there are many others, such as creating expectations that cannot be fulfilled. It is important to consider the national context, but also to take into account any international developments that might become important.
5 Design process

The third cornerstone of the service delivery system is the process. The process can be divided into a wheel with four parts: design, marketing/sale, selection/contracts and follow-up (see diagram 1). This section concerns the design process.

When the main points of an initiative are in place, such as rationale, target groups, stakeholder participation etc., the detailed design begins. A number of decisions need to be taken when planning the details of a pre-commercial procurement initiative. For example: the target groups have been decided upon, but:

- how will they be reached?
- are all organisations in the target group eligible for the same offer?
- how will IPR issues be handled?
- should an IT system supporting the offer be constructed?
- etc...

In chapter 5, important design options will be highlighted and some recommendations made, on the basis of the experiences of pre-commercial procurement initiatives in the Netherlands and the UK. The design options and recommendations are structured according to the five stages in a PCP initiative flowchart.

5.1 Activation stage

The activation stage consists of launching the initiative and reaching the main target group: the public bodies interested in performing a pre-commercial procurement. A structured marketing and communication plan is needed for this. Apart from finding and engaging lead customers in the form of public bodies, the marketing plan should also include spreading the initiative to innovative companies and others that might be interested in competing for PCP contracts, once requests for tenders are published for challenges.

Experience from the UK and the Netherlands shows that the lead body will probably need to put significant effort into engaging public bodies, since PCP is a new procurement method that can be perceived as complicated and risky to public bodies.

As mentioned earlier, one option for a lead body to create enthusiasm among public bodies is to offer financial support for performing PCPs. This can be done in the form of grants that part-finance a public body's process costs for performing a PCP process, and/or finance (part of) the contract costs for the R&D services that are purchased.
The government can also help the lead body to create incentives for public bodies to perform PCP. In the UK for example, all government departments have been ordered to prepare an *Innovation Procurement Plan* as part of their commercial strategy. The plans cover the issue of innovation and procurement processes, which highlight the visibility of innovation procurement and PCP. Another example of a UK government incentive to encourage use of PCP among public bodies was the concept of setting aside a percentage of R&D spend to be used for SME initiatives.\(^{19}\)

### 5.1.1 Marketing and communication plan

The marketing and communication plan is needed for promotion of the PCP to public bodies. It should also take into account how to reach innovative companies that might participate in PCPs. Once the initiative is running, every project needs an individual marketing plan - the overall plan is meant to detail common activities.

A marketing and communication plan can include:

- **Website**: The initiative needs a website, or information added to an existing website. The information should include both the initiative and individual PCP projects (challenge, topic area, documents and links etc.).

- **Press releases**: The initiative needs standalone press releases, as do individual PCP projects. Target media groups should be identified for each individual PCP.

- **Events**: Current events relevant to the initiative should be identified, and workshops or speaker opportunities planned. Also consider dedicated briefing events for the PCP projects, as well as using social media, Webinars etc.

- **Communication**: Outreach nodes should be identified, which can be used to distribute brief descriptions of individual PCPs and links to further information. Relevant stakeholders need to be informed of forthcoming PCPs through e-mail.

- **Newsletters**: It is advisable to identify existing newsletters that can be used to market forthcoming PCP projects.

- **Advertising**: For each PCP project, use formal channels for public procurement advertising if possible. Also, investigate established trade magazines and journals that may carry adverts, and determine whether direct advertising would be beneficial to outreach.

The lead body should take into account that selling and marketing its PCP initiative will need a lot of legwork.

\(^{19}\) In 2005, The Chancellor announced that in future there would be a mandatory requirement for all departments to spend 2.5% of external R&D expenditure with SMEs. This was widely unpopular and subsequently abandoned.
5.1.2 Finding the right name

One part of marketing the initiative is finding a name that sets the right expectations for different stakeholders.

In the Netherlands and the UK, the names of their PCP initiatives were variations of the US SBIR. Basing the name of a PCP initiative on established, well-known and successful programmes helps to sell the initiative and lessen the time needed to explain it. A drawback of this approach is the possibility of confusion. The US initiative, for example, differs in many ways from European PCP initiatives and cannot in fact be reproduced within the EU since some of its features clash with the EU procurement directive. Thus, if the US initiative is well-known in a country, using the SBIR name can produce expectations which the initiative cannot fulfil.

Another thing to consider when using an existing name that happens to be an acronym, is that the letters in the acronym need to make sense in the new context. For example, in the Netherlands, there has been an attempt to change the meaning of S in SBIR, from the original “small” to “smart” to reflect the fact that in the EU, it is not legal to construct a PCP initiative in such a way that only SMEs are allowed to tender.

Another option is to construct a new name altogether. One obvious alternative is to use the concept “pre-commercial procurement” itself, or to use the acronym of pre-commercial procurement, either in English or in the native language.

Still another alternative for a naming a PCP initiative is to use a derivative of the initiative rationale – a quick way to convey what the initiative is about. As PCP initiatives usually have different, but connected, rationales, this means focusing on the “prime mover”.

For example, if public bodies are expected to use their own budgets to perform PCPs, the name should convey gain for public bodies, such as “improved public services through innovation procurement”. If, on the other hand, PCP projects will primarily be financed by national innovation budgets, the name should speak to responsible politicians, for example “promoting innovative companies through public procurement”.

5.2 Identification stage

In the identification stage, the needs of the public bodies are identified and transformed into a concrete demand. To aid public bodies in this, a lead body might design tools for the task, or at least produce a process guideline for the use of the public bodies.
5.2.1 Identifying needs

Needs can be identified on several levels: societal needs, such as finding solutions to grand challenges, or organisational needs, which enable a public body to perform its activities in a new and better way or perform new activities that are perceived as important to its mission.

Identifying needs is generally part of a larger context than just public procurement. At any given time, processes for identifying needs are ongoing in society, for example in the form of foresight exercises or innovation management activities in public bodies. These processes are vital for finding needs than could be addressed in pre-commercial procurement projects. A lead body should consider what processes exists and how to connect them to PCP.

Ideally, public bodies work continuously with identifying and prioritising needs, as well as formulating strategies and allocating budgets for how to meet them. Such public organisations are ready to use pre-commercial procurement as a strategic tool, if no known market solutions exist for the needs or if existing solutions do not perform as desired. In such cases, one viable strategy for the public body is to perform a PCP.

In reality, not all public bodies are engaged in innovation management. A lead body cannot count on finding organisations with needs already identified. Public bodies might need support in the process. In the UK and the Netherlands, the identification of needs is usually based on a dialogue between the lead body and the public body.

As mentioned in section 5.1, a Government can create incentives for public bodies to consider innovation needs in connection with procurement, for example by demanding innovation plans from state bodies or using set-aside principles, like the US SBIR. In the UK, the Innovation Procurement Plans were put in place to make departments think about areas in which innovation was needed. As of yet, this has not proven useful as the basis for the identification of needs, however there is potential for it in the future.

One strategy for a lead body that wants to introduce PCP in a country is to start with finding and engaging public bodies that already work in a structured way with managing innovation. Finding such organisations can be more important than for example focusing on certain sectors. Also, a lead body is recommended to scan the innovation system for initiatives designed to promote innovation management in public bodies. If such initiatives exist, there is an opportunity to coordinate the PCP initiative with them. This can be helpful for the identification of needs.
5.2.2 Formulating a challenge

Once a need has been identified that looks like a good candidate for a pre-commercial procurement project, it must be transformed into a concrete demand. This means formulating a request for proposals.

When formulating a request for proposals or tender document, technical specifications should be avoided. Instead, the need should be formulated in terms of a challenge, using functional specifications.

A suitable challenge for pre-commercial procurement should have the following characteristics:

- The existence of a market that can be reasonably addressed by companies of all sizes, to ensure that innovative SMEs are not de facto excluded from competing for a contract. The market need not exist at present, but it should be reasonable to expect it to come into being within a three year timeline (i.e. the length of a standard PCP project). Otherwise, the project may be too oriented towards basic research.

- A realistic value proposition for the envisaged new solution/s. For example, “to cure cancer in two years” is not a realistic value proposition, although there certainly would be a market for such a product and it definitely solves one of the most important societal problems today.

- The required solution must be new and additional, i.e. innovative and no other known comparable solution should exist on the market.

TSB and NL Agency have found that examples of past successful competitions are very valuable in the process of formulating the specification of a challenge.

5.3 PCP stage

In the PCP stage, a lead body can support public bodies and companies engaged in a pre-commercial procurement in a number of ways. There are many design options for the PCP stage to be considered. Some of the most important ones are presented below.

5.3.1 Phases in a PCP process

One cornerstone of a pre-commercial initiative is that it be carried out in several phases. The idea is to better manage risk by dividing the development process for the new solution procured in the PCP into several parts.

The initiatives in the UK and the Netherlands both use two phases, while the EU Commission suggests that three phases could be used.
Number of phases in existing PCP concepts

<table>
<thead>
<tr>
<th>UK SBRI</th>
<th>The Netherlands SBIR</th>
<th>EU Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong>: Initial feasibility</td>
<td><strong>Phase 1</strong>: Technical, economic and organisational feasibility</td>
<td><strong>Phase 1</strong>: Solution exploration</td>
</tr>
<tr>
<td><strong>Phase 2</strong>: Prototype and test or demonstrator</td>
<td><strong>Phase 2</strong>: Non-commercial prototype, testing, demonstrator, limited test series</td>
<td><strong>Phase 2</strong>: Prototyping</td>
</tr>
<tr>
<td></td>
<td><strong>Phase 3</strong>: Limited test series</td>
<td><strong>Phase 3</strong>: Limited test series</td>
</tr>
</tbody>
</table>

The number of phases in the initiative is however not the most important design issue – that is to ensure flexibility in the initiative. With a flexible set-up, different PCP projects can employ the right number of phases depending on the challenge.

For example, a specific project and challenge might not need three or even two phases. For example if it concerns service innovation, just one phase might be more suitable. There are examples in the UK of only running one phase in certain circumstances. On the other hand, a solution based on technology with a low level of technology readiness might require many pre-commercial phases to be ready for market. Also, some products need much testing (such as a new tangible product intended for health care uses) and might therefore need several phases, ending with advanced field tests series.

The recommendation is to design the initiative with a maximum number of phases (two or three might be suitable) and then deploy these in a flexible way, to allow for case-to-case decisions on the exact number in specific PCP projects.

Secondly, it is not the number of phases that matter, but rather what they contain. The number of sections which a development process is divided into is less important than the content of the sections, i.e. the sections should contain all relevant development steps for a specific new solution.

The last phase of the EU Commission concept of PCP – test series – can be a matter for discussion. Depending on what type of product is being developed and specifically its readiness to market, funding test series might be considered too close to the market. Here too, flexibility and responsiveness to the specific project at hand is necessary.
Another point to consider regarding the phases in a PCP is the number of companies that should enter the first phase, and how many should be left in the last phase.

The Commission recommends that at least two companies remains at the end of the last phase. The reasoning behind this is to encourage competition and ensure that the public body has at least two possible producers to choose between in case it performs a commercial procurement after the PCP. The Netherlands also supports this line of reasoning.

On the other hand, if it is clear early on that only one solution has true potential, it can be argued that it is wasteful to spend tax-payer money on procuring several solutions. The issue of safeguarding competition might instead be handled through contractual agreements. The trade-off is between whether to waste public funds on unnecessary solutions “today”, versus the risk of having to deal with a monopolist supplier “tomorrow”.

Another interesting question is if a pre-commercial procurement only receives one application, should the PCP go ahead anyway? In the UK, the opinion is that while having many companies involved is preferred, there is no commitment to fund solutions that are not up to par, just to avoid having only one company in the PCP. If the quality assessment and ranking system is robust, and clearly show that only one solution is promising, it should be enough. While a lead body should always look to fund several solutions, the set-up of the PCP should prevent poor-quality concepts from moving forward.

PCP initiatives are constructed so that all companies interested in contracts in a PCP development process must apply in phase one – after that, no new companies are admitted into the PCP. This means that only one tender invitation is necessary, which simplifies the PCP process. It also allows for long-term development relationships between customer and producers. If new companies are allowed in after the first phase, the development project must be divided into several separate competitions: one phase for each part. It is no longer a PCP. Having several different competitions within the same development project will manage risk as a traditional PCP does, but it will not deliver its other advantages, such as the simplified process and the long-term development relationships.

Another design question regarding phases in a pre-commercial procurement initiative is the maximum value of the contracts that companies compete for in different PCP projects, as well as the time schedule for each phase. Again, flexibility is encouraged to accommodate different types of challenges. It might however be a good idea for a lead body to set up a “standard” for contract size and timeline, to be able to plan budget, resources and possible milestones for outcomes.
Below is an NL-SBIR example of timeline and contract size for the PCP phases.

**Diagram 5: An example of the timeline and contract sizes for the phases of the Netherlands SBIR scheme**

5.3.2 PCP project budget
The costs for a public body performing a PCP consist of:

a) costs for preparing the invitation to tender and administering the PCP, and

b) the contractual sums that the companies receive for their research and development services.

As discussed earlier, a lead body may use grants to provide financial support to a public body that performs a PCP. Even so, substantial sums will most likely need to be covered by the public body itself. It is thus important to limit costs for the contracting authority by ensuring that the budget limit for a specific PCP is kept.

There are a number of ways of doing this. One way is to limit the number of companies that can participate in every phase, or to use ceiling values for the contracts offered in the different phases. Another possibility is to publish the total budget for a PCP, let the participating companies suggest contract costs by themselves and then chose as many high quality projects as can be accommodated within the budget frame.
SBIR (NL): Budgetary consideration

Once it is decided that an SBIR tender fits best with the need of the department/society, the commissioning department reserves a budget for this societal issue. The total budget is communicated in the call for tender. Together with the department, NL Agency decides how the budget will be spent. Preferably, 33-50% of the phase 1 projects can win a phase 2 project. SBIR usually sets a maximum budget for the phase 1. Sometimes SBIR sets a maximum number of projects that can be awarded in phase 1. The remaining budget is reserved for the phase 2 projects.

The decisive factor is of course the quality of the proposals/bids. For example, if SBIR has a budget of 3 million Euro, a maximum of 500,000 will be spent on the phase 1 projects (ten to twelve projects, depending on the price of the bids and the quality). The remaining 2,500,000 Euro will be then be spent on the phase 2 projects (this will suffice for approximately five to six projects).

5.3.3 Preparing the tendering process

The tendering process in a pre-commercial procurement project must be planned thoroughly before tender documents are distributed and a tender invitation notice is published. The challenge/ request for proposal prepared in the identification stage serves as the starting point for developing full tender documents.

Further, a strategy needs to be in place for attracting suitable suppliers, based on the overall initiative marketing plan. What sort of promotion should be used, and by what channels? Will the invitation to tender notice be published world-wide, in the EU or only nationally? Are there any useful networks that can be used to inform companies of a coming PCP? Should a preparatory information conference or workshop be set up for interested companies? Would it be useful to get companies to register their interest before the official tender notice is published?

The set-up for handling the tendering process, from publishing an invitation to tender, to tendering, evaluation and award of contracts, should be prepared. One possibility for administering the tendering process is to use an internet based system. Possible features in such a system could include automatically helping companies to submit tenders with all relevant information, or assessment tools which automatically compile information from the tenders that helps evaluating different tenders (for example by automatically tallying up scores and comments from evaluator panels, and ranking tenders). However, carrying out the process entirely via the internet is best attempted in countries with thorough eProcurement experiences.
5.3.4 PCP tendering process timeline

The tendering process is divided into several activities. First comes the notice of the forthcoming PCP and publishing a formal invitation to tender. Then follows the tender open period, in which companies can submit tenders. Evaluation of tenders and awarding of contracts is last. It is recommended that tender processes are carried out to a tight schedule, as this is less demanding for SMEs.

The timeline for a PCP tendering process is typically quite tight – six to eight weeks. Given a tender open period between six to eight weeks, the tender award process should preferably not take longer than that. For SBIR (NL), evaluating tenders take six to eight weeks, while the SBRI (UK) timeline for feed-back of tenders is six weeks.

To summarise, the timeline and schedule for the tender process can look like this:

- Information session, tender invitation/ tender notice.
- Tender durability period: six weeks.
- Evaluation of tenders. Decision conference 2-3 weeks after the tender date (the last day a tender can be submitted). Target time for finishing the award process (e.i. notifying which companies won contracts): 5-6 weeks after the tender date.

5.3.5 The tender template

It can be useful to keep the design of the tender template similar to regular public procurement documents, as this ensures familiarity. It can also provide companies that are unaccustomed to public procurements with experience, which is needed in case they are successful in the PCP and wish to supply public bodies at a later commercial stage.

A PCP tender template should preferably include guidance notes designed to help companies submitting a correctly constructed tender. This will lessen the necessity of having to reject tenders due to missing information.

A tendering template can for example contain the following fields:

<table>
<thead>
<tr>
<th>SBRI (UK): Tendering template, mandatory fields</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Title</strong></td>
</tr>
<tr>
<td><strong>Project Duration</strong></td>
</tr>
<tr>
<td><strong>Total Contract Cost (€)</strong></td>
</tr>
</tbody>
</table>

Proposed projects can request a maximum total cost of xxx € (contract value). Requests for more than above mentioned cost (over a six month period) will be rejected.

**What is the best way to describe your Innovation?** (Select from options)
<table>
<thead>
<tr>
<th><strong>Company Details</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact Details</strong></td>
</tr>
<tr>
<td><strong>Description of Proposed idea/Technology</strong></td>
</tr>
<tr>
<td><strong>Scientific/Technical Project Summary</strong> (structured summary of the technical basis of the project, which outlines the background to the technology – including what the invention is, and the key deliverables of the work)</td>
</tr>
<tr>
<td><strong>Technical Background, Current State of the Art and Intellectual Property (IP)</strong></td>
</tr>
<tr>
<td><strong>Project Plan and Methodology</strong></td>
</tr>
<tr>
<td><strong>Project Management</strong></td>
</tr>
<tr>
<td><strong>Technical Team and Expertise</strong></td>
</tr>
<tr>
<td><strong>Application Finances</strong> (a summary of costs for Phase 1. inc. costs of possible subcontractors)</td>
</tr>
<tr>
<td>Directly Incurred Costs that comprise:</td>
</tr>
<tr>
<td>- Labour costs for all those contributing to the project broken down by individual</td>
</tr>
<tr>
<td>- Material Costs</td>
</tr>
<tr>
<td>- Travel and subsistence</td>
</tr>
<tr>
<td>- Consumables specific to the project</td>
</tr>
<tr>
<td>- Sub-contract costs</td>
</tr>
<tr>
<td>- Capital Equipment Costs</td>
</tr>
<tr>
<td>- Other costs specifically attributed to the project</td>
</tr>
<tr>
<td>- Other (Indirect Costs)</td>
</tr>
<tr>
<td>Indirect Costs (calculated using companies’ own cost rates) that comprise:</td>
</tr>
<tr>
<td>- General office and basic laboratory consumables</td>
</tr>
<tr>
<td>- Library services/learning resources</td>
</tr>
<tr>
<td>- Typing/secretarial</td>
</tr>
<tr>
<td>- Finance, personnel, public relations and departmental services</td>
</tr>
<tr>
<td>- Central and distributed computing</td>
</tr>
<tr>
<td>- Cost of capital employed</td>
</tr>
<tr>
<td>- Overheads</td>
</tr>
</tbody>
</table>

**Profit**

An indication of potential costs for participating in following phases can also be required.
5.3.6 Tenderer eligibility

When designing a PCP invitation to tender, one should consider in advance which type of applicants are eligible to take part in the tender process. Are all types of companies (including, for example, the state owned companies) eligible? Does the invitation to tender address single firms or also consortia? Can foundations and universities tender?

In SBIR (NL) and SBRI (UK), applicants can tender without being a company, however only firms or organisations are eligible for the PCP contracts. Therefore if a tender is successful from an applicant (not a firm), a company must be started, as contracts will only be signed with firms.

Contracts are concluded on a one-to-one basis. It is however recommended to allow subcontracting, should the tenderers need partners. In the UK there is no restriction to subcontracting. In the Netherlands, a minimum of 2/3 of the phase 1 work, and ½ of the phase 2 work, was required to be performed by the contracted company. However this proved difficult to verify and was sometimes not desirable. Inspired by the UK, this condition was recently dropped.

In the SBIR (NL), the main contractor can be asked to draft and submit a collaboration agreement in the second phase, see the box below.

### SBIR (NL): Communication to consortia

In case of a consortium, the assessment team wants to know how the results will be commercialised. Therefore, the tender must contain the following information:

1. Who has the ultimate responsibility for the project?
2. How to deal with risks such as breach of obligations by one of the partners?
3. What does cooperation look like, who are in the project team, who performs which part and at what costs?
4. Why is this consortium better suited to carry out the project, than a single company?
5. How does the consortium expect the concept to be commercialized in the future? E.g. who ensures that the concept is brought to market? Who gains what? What does the agreement on intellectual property looks like?
6. It should also be clarified what are the extra costs associated with the consortium (compared to a single firm).

All project partners are to submit the written statements that they agree with the project and make every effort to make it a success. If the consortium has an SBIR contract, our contact point is the lead contractor.

Finally, if there is no obvious leading company in phase 2 (> 50%), then a cooperation agreement is needed for all project partners.
As can be seen by the information in the box above, it is vital for a PCP that the project results (i.e. innovative solutions) can be successfully commercialised. Universities may only seldom satisfy this condition. In the UK, anybody, including universities, can tender in a PCP, but must demonstrate how the results are going to be commercialised. For example, universities will need to set up a company before getting a PCP contract. In the Netherlands universities can also, in theory, tender.

### Case of SBIR (NL):
Can foundations and local authorities apply for a PCP contract?

Foundations, as well as associations and cooperatives, are eligible to tender in a PCP competition. However, as with the other potential applicants, they have to show how they will commercialise the results. A concern is that this group of applicants is likely to have shortcomings with regard to entrepreneurship. Some big NGOs do have commercial activities/experience though.

Local authorities are not eligible to tender in SBIR (NL). The logic in not allowing municipalities is that this would constitute a case of unfair competition, as municipalities receive their budget/money from government. An exception was made for a health SBIR project. Municipalities were allowed to be a subcontracted party, but only when it was absolutely clear that no commercial parties were capable to accomplish the requested activity. In practice there are no other cases for the local authorities.

### 5.3.7 Qualification criteria for tenderers

When designing qualification criteria for the tenderers, it is important to avoid criteria that might put certain companies at an unfair advantage. It is especially important to make sure that SMEs are not excluded, which is the case in much regular procurement. One example of an excluding criterion in public procurement is specifying that a tenderer cannot be under a certain size. The rationale behind the criterion is that the contracting authority wants to ascertain steady deliveries, but it effectively disqualifies many SMEs. In a pre-commercial procurement, the exclusion of SMEs could mean the loss of interesting and innovative concepts.²⁰

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²⁰ As mentioned before, many highly innovative companies are typically SMEs and it is important to make sure that they can participate in a PCP if it is to be successful. On the other hand, in the commercial stage after the PCP, contracting authorities and other potential customers interested in the new solution need to be certain that a company can handle orders of a much larger scale. Lead bodies might be advised to prepare complementary initiatives at an early stage that can help SMEs to scale up their operation either by themselves or by acquiring partners. When a lead body is (part-)financing contract costs in a PCP, it might demand that the contracting authority introduces some sort of scale-up potential criterion in the evaluation of tenders.
5.3.8 Evaluating tenders

Formal eligibility of tender

After the tendering organisations have qualified, their PCP tenders must undergo a formal eligibility check before moving on to be evaluated. In the box below, there is an example of an eligibility check from the experience of SBIR (NL).

<table>
<thead>
<tr>
<th>SBIR (NL): Eligibility check</th>
</tr>
</thead>
<tbody>
<tr>
<td>The basic principle is that <strong>no substantive changes</strong> to the tenders can be accepted. Although, some formal matters can still be adjusted after the deadline and content additions (e.g. more detailed explanations) are also allowed.</td>
</tr>
<tr>
<td>Tenders will be rejected before the evaluation and selection procedure if:</td>
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</table>
| - **The Tender is received after the closing of the call.**  
  NL Agency communicates to the companies the importance of keeping up with the deadline and delivering on time. |
| - **The Tender exceeds the maximum budget.**  
  A company may give a **discount** and thus make an offer at or below the maximum amount. In this case the company must explain the discount – it should be reasonable. It should be made clear if a project is sold to different parties or funded by others. Only a discount/investment from the company itself is acceptable. In this case it also always needs to be communicated that: a) the charges should be competitive and b) there is no contribution from the government to the total cost.  
  Above is not actively communicated to companies (only if they ask for it). |
| - The Tender **exceeds the maximum duration** of the project |
| - **The Tender is not in Dutch.** Proposals in languages other than Dutch are ignored. |
| - One of the following (required) attachments is missing: |
  | o SBIR application form |
  | o Budget |
  | o Project description |
  | o Business plan (for phase 2 only) |
| - The budget, the project or the business plan are not in line with the tender form. There is a mandatory form that has to be used (filled in). It is not possible to use more text than allowed. |
| - The company has already a contract with the government or a grant for the same project. If (parts of) the work have been funded by the government, the tender will be rejected. The related activities to the project can are financed, though. |
The reasons for why a tender can be rejected are communicated to the companies very explicitly – both in the manual and during briefings.

A tender will not be rejected if:

- The items missing can be added by the agency itself, e.g. copies or a digital version
  (In this case there are two options to “improve” the tender. Either the applicant gets three working days to deliver the documents. If the documents are not delivered on time, the tender will be rejected.
  Or NL Agency copies or scans the relevant documents by itself.)

- Defects that can be easily recovered within the prescribed period (3 days), e.g.:
  - Signature is missing.
  - Signature is not original (copy / scan).
  - Obvious mistakes in writing, wrong typed letters, etc...

- Signatory is not authorised to sign and authorisation is missing. This is recoverable until the time of contracting.

- Opening balance for phase 2 is missing (for phase 1 there is no obligation to submit an opening balance, since this is not relevant for a feasibility study).

These reasons are not actively communicated to the companies.

If it is specified that tenders need to be in the national language, it will make it harder for companies from other countries to compete for contracts. This may have negative effects on the number and quality of the offered solutions. The language issue is connected to marketing: which geographical area to address when informing about an upcoming PCP project. A recommendation is to evaluate what is suitable on an individual project basis.

**Evaluation of eligible tenders**

After a tender has passed the formal eligibility check, it will be evaluated against the challenge and compared to other tenders. The most important check is how well it fits with the challenge, but other criteria are also needed to evaluate the tenders. It is important that this process is transparent and fair to all tenders.

Below is an example of issues to be evaluated in a tender:

- Does the tender address the challenge?
- What will be the effect of the proposed solution to the challenge?
- Does the proposed project have commercial potential to lead to a marketable product, process or service?
Will the solution have a competitive advantage over existing/alternate solutions that can meet the market needs?

What (technical) approach will be adopted? Is this deemed appropriate?

Is the proposed plan a sound approach for establishing (technical and commercial) feasibility?

What is innovative about this project? Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies for this area?

Does the company appear to have the right skills and experience to deliver the intended benefits?

How will the project be managed? The tender should demonstrate that there is a clear management plan which will enable the resources, including manpower to be used to maximise high quality research outputs.

What are the risks (technical, commercial, environmental, ethical etc.) to project success? Does there appear to be risk mitigation or alternative strategies?

Does the tender look sensible financially? Is the overall budget realistic and justified in terms of the aims and methods proposed?

Are the milestones and evaluation procedures appropriate?

There are several ways of evaluating tenders. One common method is to set up a panel of evaluators. The panel can for example consist of independent experts, representatives for the contracting authority and possibly people from the lead body. The evaluation will be made using criteria that must be clearly stated in the original tender documents.

It is recommended that a flexible approach is taken regarding which criteria to use, based on specific challenges and the particular needs of the contracting authorities. Criteria can also look different depending on the specific rationale and set-up of a lead body's initiative to encourage the use of PCP.

Sometimes, it might make sense for a lead body to always use the same criteria. Sub-criteria can then be added based on the specific challenge in question, defined in cooperation between the lead body and the public body. Another approach is to let the contracting authorities themselves decide the criteria, either independently or together with the lead authority, on the bases of each PCP project. Here, the same core criteria might not be used in all PCP projects that the lead body supports.

Below is an example of criteria suitable for a lead body that performs PCPs on behalf of public bodies. The criteria might be less well suited for a public body that itself conducts and finances a PCP.
Example of core criteria

Example of core criteria:
- Solution of public challenge and Entrepreneurship
- Degree of innovation and (technological) quality
- Economic perspective
- Added value for society (other positive or negative effects to society not mentioned at the first criterion)

In more detailed, the core criteria above should cover the following objectives:

**Contribution to the solution of public demand and Entrepreneurship:**
In assessing this criterion it has to be considered whether the company can demonstrate convincingly that the company's ambition, knowledge and expertise to the project could be technically and commercially successful.

**(Technology) degree of quality and innovation:**
The international state of technology / knowledge by the project should be assessed. Higher (technological) innovations result in higher scores than marginal (technical) improvements. Significantly new or substantially new uses of existing technologies and knowledge can be classified as (technological) innovations. Additional aspects for the assessment of the innovation can be things like originality of the approach, the depth and breadth of the project.

**Economic perspective:**
The project should fit within the strategy of the company. A good business perspective is considered. The extent to which the project results create an additional economic value to the company should be an important aspect in the assessment. The future revenues of the project results can be compared with the anticipated costs of research and development and subsequent investments.

One of the factors in the evaluation of the payback calculation is based on the totality of investment for introduction on the market and the expected revenues after introduction. Projections should wherever possible be supported by market facts and assumptions about market size, revenue guidance, current price of an alternative, competitive, value of improvements, cost, investment in assets, market introduction and additional sales.

**The added value for society (social and ecological aspects):**
The project should include solutions for societal problems, meaning that society should benefit from the suggested innovations. This criterion is to be assessed at two levels: impact on the company involved in the project and implications for society. In assessing the projects, the committee should consider the rationale, plausibility and completeness of the relevant social and ecological aspects.
To evaluate tenders in a comprehensible and objective form, it is useful to establish a numerical scoring system. Each criterion gets a specific score and can be given a different weight. When deciding the individual importance (weight) of each criterion, a good coordination is needed between lead body and public body to increase the probability of achieving the goals of a specific PCP.

When summing up the weighted scores, a ranking list of the tenders is produced that can be used by the evaluating panel. A minimum score should always be required. The evaluating panel advises the contracting authority (or whoever makes the final contracting decision) on the ranking of tenders, and a decision is made about which tenders to award with a contract.

Tenders should never be evaluated on lowest price. Instead, best value for money must be used.

It is important to give clear feedback to companies that submitted tenders. The aim should be to make the reasons for the decision clear to the tenderer. Evaluators should justify their evaluation of each criterion by giving their reasoning in writing. If scores are used, the actual score of each tender might however be kept from the companies.\textsuperscript{21}

\subsection*{5.3.9 Confidentiality issues}

The public administration is based on the principle of publicity. The right of access to all public documents and records is affected by certain exceptions prescribed on the grounds of national interest and the protection by law of the individual or society.

The principle of transparency established by Article 255 of the EC Treaty is balanced by the obligation of professional secrecy laid down in Article 287, which is explicitly mentioned in various acts of secondary legislation.\textsuperscript{22} It is of particular importance in public procurement concerning business secrets.

Whilst the directives do not explicitly indicate what type of information is covered by this obligation of professional secrecy, the Court of First Instance has already clarified the concept of 'business secrets', stating that this concerns information of which not only disclosure to the public but also mere transmission to a person other than the one who provided the information may seriously harm the latter's interests.\textsuperscript{23}

\textsuperscript{21} Such secrecy might not be possible everywhere in the EU. For example Sweden and Finland have a far-reaching “Principle of Public Access”, under which the general public is guaranteed an unimpeded view of activities pursued by the government and local authorities. All documents handled by authorities are public unless legislation explicitly and specifically states otherwise. Even then, each request for potentially sensitive information must be handled individually, and a refusal is subject to appeal.

\textsuperscript{22} COM(2007) 185 final GREEN PAPER Public Access to Documents held by institutions of the European Community.

The EC Treaty strikes a balance between the principle of transparency established and the obligation of professional secrecy, which concerns in particular information about undertakings, their business relations or cost components. A particular case is the protection of intellectual property, where international agreements apply.

The national legislation may include specific regulation about the principle of publicity as well as business secrets that should be taken into account in designing the national PCP programs.

The details that should be considered carefully regarding confidentiality issues are many, but the following questions might be useful in that consideration:

- How are the business secrets protected in the PCP call?
- What do the national legislation and regulations say about the protection of business secrets?
- What do the national legislation and regulations say about the protection of intellectual property?
- How is the transparency taken into account in the PCP call?

A recommendation for a lead body is to prepare information material (for example a brochure or a FAQ) directed at companies regarding confidentiality issues. It should be clear from the start for the companies what rules are in place and how far, and under what circumstances, confidentiality can be protected.

### 5.3.10 Complaints and claims

To this date, no contracting decisions have been legally questioned by companies that failed to receive a contract in SBIR (NL) and SBRI (UK). It is however important that a lead body prepares itself against the possibility of complaints and claims, for example by examining legal situations that potentially could arise.

### 5.3.11 Set PCP contracts

The practice of setting and publishing the contracts which will be awarded to companies that submit successful tenders in a PCP has been identified as “best practice” for both the Netherlands’s SBIR and the UK’s SBRI. Set contracts have proved to be beneficial for both companies and the contracting authorities. By publishing set contracts already in the invitation to tender documents, companies receive clear expectations on what they will tender for beforehand, while contracting authorities avoid entering into contract negotiations with all the companies in a PCP.

The contracts should cover all phases of a PCP project.
5.3.12 IPR issues

Since one of the main goals of PCP initiatives is to give an opportunity for businesses to develop and demonstrate innovative solutions supported by a customer, a **central PCP feature is that intellectual property rights remain with the company**. Retaining IPR is a major incentive for companies to participate in a PCP. Even if the contracting authority does not commercially procure the new solution after the PCP is finished, retaining IPR still makes it possible for firms to commercialise their new solutions on the open market. If companies are not in possession of the IPR, they lack the basis to grow with their new solution independently of the original contracting authority.

There are however some restrictions: a balance between the strategic interests of the company and the contracting authority should be reflected in how IPR is assigned. The general rule is to keep as much IPR as possible with the supplier and to transfer only those rights to the public body that it needs in order to satisfy its strategic goals.

The public body should retain a free licence to use the R&D results for internal use. Further, the public body should reserve the right to require the companies to license its IPR at a fair and reasonable market price to third parties. If a company fails to commercialise the result of a PCP project, the contract should include a call-back provision so that the IPR reverts back to the public body.

At last, to avoid State aid, the private supplier must somehow “pay” for the IPR that is retains. One way is to use a lower price for the R&D services, compared to an exclusive development, to reflect the market value of future economic benefits as well as risks for the company.²⁴

Below is an example of a model contract for SBRI (UK).

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**Model Contract for SBIR (UK): Intellectual Property Rights**

All Background Intellectual Property used or supplied under this Agreement in connection with the Project shall remain the property of the Party introducing the same and nothing contained in this Agreement or any licence agreement pertaining or pursuant to the Project shall affect the rights of either Party in its Background Intellectual Property.

Subject to conditions 16.3 and 17.5, the Intellectual Property rights arising out of the Project (“Project Intellectual Property”) shall belong to the Contractor.

---

The Contractor hereby grants to the Authority and, where appropriate, the Crown, a UK wide, irrevocable, royalty-free, non-exclusive licence, together with the right to grant sub-licences, to use or publish information, Data, Results, outcomes or conclusions arising from the Project and any foreground technology for such purposes as the Authority shall in its absolute discretion deem fit.

**Exploitation of Intellectual Property**

The Contractor shall inform the Authority of any Results which are capable of exploitation whether patentable or not.

The Contractor shall, as appropriate, devise, publish, implement and maintain procedures for the management of Intellectual Property in the Results and in particular, but without limitation, shall use all reasonable endeavours to ensure that:

- the Results of the Project are identified, recorded and carefully distinguished from the outputs of other research;
- prior to any publication of the Results of the Project, patentable inventions arising from the Results are identified, duly considered for patentability and, where it is reasonable so to do, patent applications in respect thereof are filed at the British or European Patent Office; and
- all such patent applications are diligently executed having regard to all relevant circumstances.

Consistent with the good management of Intellectual Property and the continued agreement of the Authority, the Contractor shall use its best endeavours to promote the dissemination of the Results of the Project.

The Contractor may exploit commercially any publications arising from the Project.

If, within three years of its creation, any Intellectual Property in the Results has not been commercially exploited by the Contractor, and the Contractor is not using its best endeavours to do so, the Contractor shall if requested by the Authority assign the Intellectual Property Rights in the Results to the Authority and, where appropriate, the Crown.

The distribution of intellectual property rights and contractual obligations between companies and the contracting authority in a pre-commercial procurement should be published in the call for tender documents, so that interested companies are fully informed about the IPR conditions before tendering. All phases of the PCP should be covered in the call for tender document.
5.3.13 Payments

When setting up a PCP project, payment modalities as well as reporting requirements for the companies should be considered. In the SBIR (NL) case, payments from the public body to a company are basically done in two instalments, as demonstrated in the box below.

### Payment and reporting modalities for SBIR (NL)

For phase 1 (feasibility) of SBIR payments are done in 2 instalments:
- 80% advance payment
- 20% payment at the end of phase 1

For phase 2 (development phase) there are usually advance payments of 20% (up to 80%) of the contracted price or per milestone price. The last payment (20%) is done after accepting the end report and a demonstration of the result.

Alternatively payment is done upon reaching agreed milestones. In this case the company reports to NL Agency or public body (depending on the role allocation between both for the particular competition) and gets the instalment.

5.4 Commercialisation stage

After a successful PCP stage, the result should be one or more new solutions to the challenge ready to enter the market. At this stage it remains for the public body to decide to do a commercial procurement and implement the chosen solution, and for companies to commercialise their innovations.

Evidence from both the Netherlands and the UK suggests that the commercial stage is hard for both public bodies and SMEs. This jeopardises the final success of a PCP project. Therefore, a lead body might consider what types of commercialisation and implementation support is available to public bodies and to SMEs.

5.4.1 SME commercialisation support

There are indications in existing pre-commercial procurement cases that the step from participating successfully in a PCP to succeeding in the commercial arena is not easy for a small and medium sized company. A fast scaling-up of production for example, requires risk capital or partnerships with other companies. Market knowledge is vital, as is an understanding of export conditions and standardisation discussions. Familiarity with the regulations and formalities involved in regular commercial public procurements is also needed. The smaller the company, the harder commercialisation can become.
Thus after a PCP is finished, participating companies might require support to successfully handle the commercial stage. A lead body designing a PCP initiative does well to think about whether commercialisation support is needed, what kind of support already exists, what is missing and which actors can provide the support.

In most countries, there usually exist commercialisation initiatives that aid SMEs in their commercialisation endeavours. An important design feature for a PCP initiative, when it comes to commercialisation, is therefore to ensure that SMEs in a PCP project can easily connect to existing forms of support. It is also a good idea to perform a gap analysis of the commercialisation support already available in the service delivery system, to see if any vital form of support is lacking and needs to be added. Some commercialisation support could possibly be built into a PCP initiative.

Examples of commercialisation support directed to SMEs:
- Facilitating contacts between SMEs and risk capital.
- Aiding SMEs in finding potential partners in the form of larger companies.
- Ensuring that SMEs understand how to participate in regular public procurements.

One example of a feature in a PCP initiative that considers the commercialisation stage is found in the Netherlands: NL Agency includes venture capitalists and buyers in the jury that evaluates PCP project proposals.

5.4.2 Design implementation support to public bodies
Implementing innovative solutions into existing organisations is not only a question of procuring the solution. It also requires practical activities such as training of staff or change of work-flows. Also, cultural aspects need to be taken into account. The more radical the innovation, the harder implementation can be expected to be.

The success of a commercial procurement of a PCP solution rests heavily on how professionally the implementation process is conducted within the public body that will use the new solution. Therefore, a lead body might consider if and what support there is available to facilitate implementation.

As in the case of SME commercialisation support, it is not improbable that there already exist initiatives that target implementation and use of innovations in the public sector. If so, design should focus on how to connect the PCP initiative to such complementary activities.
5.5 Follow-up stage

The follow-up stage is not a stage in the normal sense of the word. Rather, it is an ongoing activity encompassing monitoring and evaluation of individual projects in the PCP initiative, as well as impact analysis. The follow-up approach should preferably be designed at the outset, and put in place as soon as the activities begin.

5.5.1 Lead body follow-up

All actors participating in a pre-commercial procurement (lead body, public bodies and innovative companies) benefit from understanding how the initiative itself, as well as individual projects, are performing and what effects occur.

There are a number of reasons why it is necessary to follow up an initiative:

- to ensure that it is working according to plan and delivering intended benefits,
- to pick up early signals so as to be able to tweak the design if necessary,
- to provide evidence and facts that can promote the initiative further, and
- as a basis for discussions with policy makers and those responsible for budgets.

To achieve this, a follow-up plan needs to be designed in a structured manner, preferably before the initiative is launched, as well as updated during the execution of the initiative.

It is important to differentiate between follow up of individual projects within the initiative, the initiative itself and the innovations system targeted.

One option for the follow-up approach is to design it on three time-scales: short term monitoring, medium term evaluations and long term impact analysis.

- Short term: For monitoring purposes, output goals are needed (i.e. results). Indicators that correspond to the output goals should be created using quantitative data. Results should also be followed-up qualitatively, for example using project reports.
- Medium term: To be able to indicate whether the initiative had met its initiative/programme goals, outcome goals must be specified and outcome indicators created. Here, it is important to back up the “evidence” with qualitative indications of desired outcomes: case studies can be very useful for example.
- Long term: Impact goals are closely related to the rationales that motivate an initiative. Thus, they are typically high-level and address whole innovation systems. They are also long term, since it takes many years to achieve innovation system impacts. It is hard to pin impacts to specific initiatives and therefore, it can be better to perform impact analysis on a portfolio of similar initiatives.
Thus, attribution becomes harder as follow-up activities proceed from outputs to outcomes to impacts. If an impact logic exists, and it is possible to present short- and medium-term indicators, and further if qualitative evidence exists, it facilitates discussions on impacts for example with politicians and internally at the lead body.

## Examples of PCP initiative follow-up

In the USA, there is much follow-up experience concerning PCP, since their SBIR initiative has been on-going in different guises, since 1982.25

The UK and Dutch PCP initiatives are much younger, and it has not been possible to perform any impact analysis on them yet. It is too early to perform real evaluations, at least in the case of the UK initiative, which was re-designed and launched on a broader scale as late as 2009. An early report was however been published in the UK in June 2010, which is meant to be seen as a “health check” analysis of the new SBRI.26

### 5.5.2 Support to follow-up in public bodies

It is useful for all actors in a PCP initiative to have some sort of structured approach for follow-up, including contracting authorities (and also companies that develop new solutions). Today, there is a problem in some EU countries that little to no follow-up is made by public bodies regarding the quality and outcome of their procurements. In view of this situation, a lead body might decide to add a module to its PCP initiative: assisting public bodies with methodologies for follow-up of pre-commercial public procurements.

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25 For information on assessment methodology for the US SBIR initiative, see for example Wessner CW, editor, *An Assessment of the SBIR Program at the National Science Foundation*, National Research Council (US) Committee for Capitalizing on Science, Technology, and Innovation: An Assessment of the Small Business Innovation Research Program, 2008. [http://www.ncbi.nlm.nih.gov/books/NBK9609/pdf/TOC.pdf](http://www.ncbi.nlm.nih.gov/books/NBK9609/pdf/TOC.pdf). It however needs to be said that the US SBIR is different, in some points, from what is possible within the EU. All experiences might therefore not be applicable in Europe.

### APPENDIX

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>IPF</td>
<td>InnoPartnering Forum</td>
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<td>IPR</td>
<td>Intellectual property rights</td>
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<tr>
<td>PCP</td>
<td>Pre-commercial procurement</td>
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<tr>
<td>R&amp;D</td>
<td>Research and development</td>
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<td>SBIR</td>
<td>Small Business Innovation Research (NL)</td>
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<tr>
<td>SBRI</td>
<td>Small Business Research Initiative (UK)</td>
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<tr>
<td>SME</td>
<td>Small- and medium sized companies</td>
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<tr>
<td>TSB</td>
<td>Technology Strategy Board (UK)</td>
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</table>
APPENDIX II: Recommended reading


Elder, J. and Georghiou, L. (2007), *Public procurement and innovation – Resurrecting the demand side*

European Commission (2009), EU-Project OMC-PTP, *Exploring Public Procurement as a Strategic Innovation Policy Mix Instrument*


European Communities (2008), *Pre-commercial procurement: Driving Innovation to ensure sustainable high quality public services in Europe*.


*Guide to the Community rules on public procurement of services other than in the water, energy, transport and telecommunications sectors directive 92/50/EEC.*

