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**Title:** Pre-commercial procurement – regulatory effectiveness?  
**Issue Date:** 2014-10-23
CHAPTER 4. Implementation of PCP or PCP-like schemes in the EU – the current ‘state of play’

4.1. Introduction

By 2011, there were no known examples of PCP procedures in the form proposed by the European Commission in its 2007 PCP Communication. By that time, only national initiatives inspired by the US SBIR were being piloted in three Member States: the Netherlands, UK and Belgium. These initiatives were all implemented by centralised innovation agencies and closely resembled subsidies – more than public contracts. These programmes involved no or only sporadic interaction with the end-customer and did not attract EU-wide competition.

The European Commission became aware that contracting authorities with operational needs that positioned them as potential end-customers of innovation needed additional incentives to engage in PCPs. To this end, the European Commission fosters since 2009 collaborations and exchanges of best practices between EU contracting authorities, by funding the set-up of networks. Since 2011, the European Commission moreover began funding all of the organisational costs, and part of the contractual costs, of concrete cross-border collaborative PCPs.

This chapter outlines the general state of implementation of PCP(-like) initiatives in the EU. Based on available reviews and studies, I describe in section 4.2 the state of implementation of PCPs throughout the EU by 2011. I also summarize the barriers to widespread implementation, felt by EU contracting authorities.

In sections 4.3-4.5, I describe the set-up and practical implementation of the most established PCP/SBIR-like initiatives in the Netherlands, in the UK and in Belgium. In this context, I compare the features of the three national initiatives with their US source of inspiration. I subsequently establish whether or not the national initiatives incorporate the prerequisites for an effective implementation of a PCP, as identified in Chapter 2.

In the following section 4.6, I outline the efforts of the European Commission to create better PCP practices within the EU. Finally, in section 4.7 I draw conclusions on the remaining barriers to a wide and effective implementation of PCP within the EU.

4.2 PCP’s ‘state of play’ in the EU

Already during the preparation of the PCP Communication, the European Commission

investigated whether there were known practices in the EU, in line with the envisaged PCP procedure. An early report of 2007 indicated there were no known PCP procedures being tested in the EU. Based on interviews with contracting authorities and suppliers involved in innovation-oriented procurements coming close to PCP, the report pointed out several barriers to the up-take of PCP procedures. These are: lack of technical knowledge of the contracting authority, organisational difficulties in cross-border projects, difficulty to agree on shared demand requirements, difficulty to argument the benefits for supplier to participate in a PCP when subsequent commercialisation is not guaranteed.

Three years after the release of the PCP Communication, the European Commission performed another review of the state of implementation of PCP in Europe. The survey revealed that no examples of cross-border collaborative PCP procedures, as envisaged by the 2007 PCP Communication, were known. The Commission’s efforts had thus not helped to bring about the expected practice.

PCP-like initiatives had however been set-up in a handful of Member States by national or regional innovation agencies that were driven by national innovation policy motivations rather than concrete procurement needs. Most importantly, these PCP-like initiatives did not promote EU-wide competition. The initiatives in the UK and the Netherlands were the most established, followed by the ones in Belgium, Finland, Sweden, Spain, the Czech Republic and Italy.

The Commission’s PCP Survey concluded that EU contracting authorities expected a greater effort on the part of the EU to stimulate the implementation of PCPs (through sharing of practices as well as through funding) in broad areas. The survey further confirmed that concerns on compliance with the EU state aid rules constituted a reason for contracting


774 PCP Survey (2011) 5.
authorities not to implement PCPs.\textsuperscript{775}

A study of 2011\textsuperscript{776} confirmed that PCP is growing in popularity in the EU Member States. Based on interviews with contracting authorities, the study concluded that this was partly due to the success of the US scheme (which was replicated in the Netherlands and in the UK), and partly due to the European Commission’s efforts to promote this instrument. However, the study confirmed the conclusion of the previous EU review, that individual contracting authorities that had the concrete needs and had the potential to act as end-customers were rarely involved in the available PCP-like schemes.\textsuperscript{777}

Another study, on the demand-side innovation policies of OECD countries, confirmed in the same year that EU contracting authorities tend to favour already proven, low-risk solutions and that they lack knowledge and capabilities as well as incentives to adopt a different attitude.\textsuperscript{778}

In conclusion, PCP conducted in collaboration between contracting authorities from different Member States with the aim to find innovative solutions to shared needs, did not occur by 2011.

The reviews and studies analysed in this section identify the following barriers to the uptake of PCP:

- lack of technical knowledge;
- aversion to risk;
- organisational difficulties in cross-border projects;
- difficulty to agree on shared demand requirements;
- difficulty to convince suppliers of the benefits to participate in PCP when subsequent commercialisation is not guaranteed;
- concerns regarding compliance with EU State aid.

In the next sections, I will outline which type of PCP-like programmes were being implemented in the Netherlands, UK and Belgium by 2011 and beyond.

\textsuperscript{775} Ibid. Already in 2003, the same concern that EU State Aid legislative provisions constitute a barrier to the funding of R&D project in advanced development stages was expressed by the Dutch Social Economic Council in an advice to the Dutch government before the introduction of the SBIR-like initiative. Social Economische Raad, 'Advies Interactie voor innovatie' (19 december 2003) 30 http://www.ser.nl/~/media/DB_Adviezen/2000_2009/2003/b22254%20pdfashx accessed 4 September 2012.


\textsuperscript{777} Izsak&Edler (2011) 22-3.

\textsuperscript{778} Eva Camerer and Henriette van Eijl, 'Demand-side innovation policies in the European Union', in 'Demand-side innovation policies' (OECD 2011) 179 (Camerer&vanEijl (2011)).
4.3 The Dutch SBIR

4.3.1 Background to adoption

In the Netherlands, a Small Business Innovation Research (SBIR) programme was started in 2004. Initially, the scheme was not considered to be a procurement instrument, but a form of subsidy. The SBIR was considered to give more effective support than the existing subsidy schemes, due to its competitive element and due to the envisaged presence of a demanding customer. Later, the legal justification of the scheme became article 16(f) of Directive 2004/18 and SBIR became a public procurement instrument.

Its declared objectives were (1) to identify innovative solutions to societal challenges and (2) to support innovative SMEs. The justification for the intervention of the government through the SBIR scheme was found in the difficulties that SMEs encounter when looking for private financing of the first phases of innovative projects. It was also submitted that the private market provided insufficient stimuli for the creation of innovative solutions for societal challenges.

The particular focus on support for SMEs was in line with the rationale of the US SBIR. Following a review by the European Commission though, the Dutch SBIR was modified to allow both small and large companies to participate. In addition, the eligibility condition for the company to reside on the territory of the Netherlands was dropped. Yet, in practice, the scheme proved to be particularly attractive to small and medium sized, mainly Dutch businesses. Statistics show that between 2004-2010, less than 10% of the 252 contracts at phase 1 (Fig.1) and 89 at Phase 2 (Fig.2) were awarded to large companies.

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782 NL Agency (2011) 3.
785 The SBIR scheme is labeled as supportive to Dutch SMEs. NL Agency (2011).
786 Technopolis (2010) 27.
The SBIR scheme was from the beginning divided into two parts: one departmental SBIR run by the NL Agency (Agentschap NL), an innovation agency of the Ministry of Economic Affairs and one run by the Dutch Organisation for Applied Sciences (TNO). The second SBIR scheme is mainly intended to fund companies that are willing to commercialise product ideas of TNO. Only the departmental SBIR forms the subject of the analysis in this section as only this

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is identified as pre-commercial procurement.\textsuperscript{788}

The departmental SBIR scheme was set-up as a centralised scheme. NL Agency was put in charge of running it for different government departments (ministries). It was not set-up through legislation and there is no official document introducing the SBIR programme, besides guidance on the possibility to conduct the SBIR within the existing legal framework.\textsuperscript{789} This scheme started in 2004 with a first pilot project run by the Ministry of Economic Affairs.\textsuperscript{790} In 2005, after the positive assessment of the pilot, the broad application of the SBIR scheme throughout all government departments was given green light. At the end of 2008, NL Agency set up an SBIR programme office. In the same year, the scheme was taken outside of the Ministry of Economic Affairs and brought under the responsibility of an interdepartmental entity, named Knowledge and Innovation (Kennis en Innovatie). It continued to be centrally run by the NL Agency, however.

Thus, the SBIR instrument was integrated into the innovation policy of the Dutch government and was included by the different government departments (ministries) into their Societal Innovation Agenda (MIA)\textsuperscript{791} budgets. This enables them to regularly employ SBIR projects.\textsuperscript{792} In 2010 there were six departments employing the SBIR instrument and the number of SBIR calls for proposals were on a rising curve.\textsuperscript{793}

In February 2010 the Dutch SBIR scheme was evaluated. Out of the total of 28 projects awarded by then, only the first pilot project (of 2004) was finalised. By that time, the Dutch SBIR had spent €71,5 million.\textsuperscript{794}

\section*{4.3.2 Features of the NL SBIR initiative}

\textit{a) Non-mandatory participation}

Unlike in the US, the implementation of SBIR projects by contracting authorities in the Netherlands is not expressed in legislation. The Societal Innovation Agendas of several Dutch ministries include now references to the SBIR instrument. This provides justification for funding SBIR contracts, but does not mandate them to participate in the SBIR programme and to
reserve budgets therefore. The evaluation performed by Technopolis in 2010 shows that some ministries had not deployed the SBIR instrument.  

b) Centralised implementation

The participating ministries are, moreover, only marginally involved in the SBIR projects they decide to fund. Unlike in the US SBIR, the funding agencies only dictate the broad topic, while the NL Agency runs the SBIR competition, signs and subsequently monitors the contract execution. NL Agency may also propose a topic to a specific ministry. In both cases, NL Agency provides the ministry extensive support in defining the concrete call requirements.  

Another difference with the US SBIR constitutes the coordination of the SBIR competition by NL Agency project officers who do not possess in-depth technical expertise on the respective topic.  

c) Eligibility criteria

Unlike the US SBIR, but in line with EU guidance, both large and small companies are allowed to submit offers in NL SBIR calls. Moreover, eligibility is not conditioned as in the US upon ownership or control by EU citizens. Only performance of the R&D within an EU Member State is required. This means that non-EU owned companies may win NL SBIR contracts. Moreover, as ownership is not checked, companies majority-owned by venture capital or hedge funds or companies controlled by equity funds may participate in the NL SBIR competitions.  

In addition, only proposals for R&D activities are eligible within a NL SBIR project. According to the SBIR Guide of 2011, the following R&D activities are eligible for funding under the SBIR scheme:

- Experimental or theoretical activities which are conducted in order to accumulate new knowledge;
- Planned or critical research which is intended to accumulate new knowledge and capabilities which are necessary for developing new products, processes or services, or to improve substantially existing products, processes or services;
- Acquiring, combining, designing and using existing scientific, technical, business or  

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796 Technopolis (2010) 34.
797 None of the 7 employees of the SBIR office of NL Agency has strong technical background. Moreover, they are not full-time engaged in deploying the SBIR programme. See Technopolis (2010) 33.
798 Also institutes, corporations are currently allowed to participate if they can convincingly demonstrate that they are capable to commercialize the products. SBIR programmabureau van Agentschap NL, 'SBIR handleiding voor ondernemers' (SBIR Guide (2011)) (7 July 2011) 10 <http://www.agentschapnl.nl/sites/default/files/bijlagen/SBIR%20handleiding%202011-1.pdf> accessed 18 December 2013.
799 This type of companies is only recently allowed to participate in the US SBIR competitions.
other relevant knowledge and capabilities for plans, schemes or design of new, modified or improved products, processes or services;

- Making designs, drawings, plans and other documentation, provided that these are not intended for commercial use;
- Developing commercially useful prototypes and pilots, if the prototype is the commercial end-product and the production of such a prototype is too expensive to use it just for demonstration and validation purposes;
- The experimental development and testing of products, processes and services, for so far as these cannot be used or be adjusted for industrial use or for commercial exploitation;
- The production of a limited 0-serie: limited production or supply in order to incorporate the results of field testing and to demonstrate that the product or service is suitable for mass production or supply to acceptable quality standards;

The following activities do not, according to the SBIR guide, fall under the concept of R&D:

- Routine or periodical modification of existing products, production lines, manufacturing processes, services and other normal activities, even if these modifications may regard improvements;
- Prototypes whose commercial readiness has already been tested;
- Commercial development such as serial production, delivery intended to achieve commercial viability or to recover R&D costs, integration, customization, incremental modifications and improvements of existing products or processes.

The NL SBIR follows the definitions of R&D in the Frascati Manual and of R&D in the US SBIR context. It is difficult to establish how the R&D definitions work in practice by studying the general description of the NL SBIR awarded projects.\footnote{For a description of 25 SBIR awarded projects see NL Agency (2011).} There may, however, be serious gaps between the law in the book and the law in action here.

It appears, for instance, that no market consultation or market analysis is undertaken preceding a NL SBIR call. It also appears that no attention is paid to whether the contract can be qualified as an R&D service contract, or otherwise an R&D works (e.g. construction of prototypes) or R&D supplies contract (e.g. prototypes). The R&D service condition was included in the EU procurement legislation in order to discourage funding of innovative products that are very close to commercialization.
As a consequence, it may happen that the desired functionality is available on the market or that the contract involves marginal innovation and cannot be qualified as an R&D service contract.

d) Phases

Following the US model, the Dutch SBIR scheme provides funding at two stages, namely the feasibility stage, which investigates the viability of the idea, and the development stage, which covers the full R&D effort and the development of a prototype or proof-of-concept/demonstration. Phase 1 is funded with €20,000 - €50,000 and may take up to 6 months. Phase 2 is funded with €150,000 - €500,000 and may take up to 2 years. It is not expressly allowed to deviate from the maximum amounts or from the maximum time-limits.

The Dutch scheme provides considerably lower amounts of funding than its US counterpart. Moreover, the timeline for Phase 2 is limited compared to both the US SBIR (which does not specify maximum timelines for Phase 2) and to the EU guidance (4-5.5 years for a whole PCP procedure). In addition, no explicit possibility is granted to award multiple sequential Phase 2 contracts to the same company for continuing the R&D effort in case the first PCP does not reach commercialisation. This indicates that tolerance to early failure is not embedded in the programme and that closer to market projects will be favoured.

Subsequent commercialisation (after Phase 2) is not financially supported as part of the Dutch SBIR, but the NL Agency makes efforts to spread information on the project, to organize visits from ministries to the project and to organize workshops in which companies present their developed products. Contrary to the US SBIR, the NL SBIR does not allow direct purchase of the developed innovations by the funding agency. Instead, a separate procurement procedure needs to be organized. This has been identified as a barrier to participation in SBIRs by contracting authorities with concrete needs for innovative solutions, particularly by the Dutch Department of Defence.

e) Percentage of funded R&D costs

Initially, the NL SBIR followed the US model and funded 100% of the R&D costs. After being brought in line with the EU PCP approach and the EU state aid rules, the Dutch SBIR requires bidders to offer a discount for retaining the ownership of the developed innovative

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802 SBIR Guide 2011.
803 The EU PCP does not prescribe specific amounts of funding.
804 Phase 2 of the NL SBIR covers the activities of both Phase 2 and 3 of a PCP as described in the PCP Communication.
805 Ibid 35.
product.\textsuperscript{808} This is in line with the PCP Communication requirement to ensure that a market price is paid and no State aid is granted. At the same time, this deviates from the practice within the US SBIR programme, where 100\% of the R&D costs and a small profit are covered.

In practice though, compliance with the market price requirement within the NL SBIR competitions is not enforced.\textsuperscript{809} Thus, offers are not evaluated on price. The available budget per Phase is pre-set in each individual NL SBIR call as fixed ceiling price.\textsuperscript{810} This turns the whole market price requirement into a formality and leaves room for non-compliance with the EU State aid rules. The perception of the participating companies that they receive 100\% of the R&D costs constitutes an additional proof that the market price criterion is nothing more than a formality.\textsuperscript{811} Further discussion of this issue can be found in Chapter 5.

\textit{f) IPR arrangements}

The IPR arrangements within the Dutch SBIR for both Phase 1 and 2 are in line with the recommendations of the European Commission in its 2007 Communication, as well as with the US SBIR. IP ownership remains with the SBIR participant, while the government retains a royalty-free license to use the results. It also obtains the following rights: to disseminate the results, to make the knowledge public when justified by the public interest, and to mandate the supplier to provide licenses to third parties under reasonable conditions.\textsuperscript{812} Unlike in the US, however, the provisions are drafted in very general terms and no enforcing mechanisms are specified.\textsuperscript{813}

\textit{g) Award criteria}

The bids are evaluated against the following general criteria\textsuperscript{814}, which may be further specified on a case-by-case basis:\textsuperscript{815}

- Potential of solving the societal problem which is the subject of the NL SBIR call, against a reasonable cost;
- Entrepreneurship (whether the company (and its project partners) is/(are) capable of bringing the product to the market: vision, ambition, experience etc.);
- Degree of innovativeness (originality and inventiveness of the proposed solution);
- Economic perspective (the chances that the product will be commercialised);

\textsuperscript{808} SBIR Guide (2011).
\textsuperscript{809} The guidance for implementation of SBIR does not mention any obligation for the award commission to check whether the reduction indicated in the SBIR bids corresponds to market realities.
\textsuperscript{810} SBIR Guide (2011) 6.
\textsuperscript{811} Technopolis (2010) 89.
\textsuperscript{812} SBIR Guide (2011) 8.
\textsuperscript{813} Ibid.
\textsuperscript{814} SBIR Guide (2011) 7.
\textsuperscript{815} Technopolis (2010) 33-4.
• Environmental and social aspects (whether the developed product constitutes by itself a polluting or resource intensive solution);
• Quality of the proposal and of the project (is the proposal clearly drafted and does it have the potential to achieve the proposed solution).

Three of the award criteria lay a strong accent on the commercial potential of the proposed R&D project, compared to two criteria related to the innovativeness and quality of the proposal. This reveals a potential bias towards closer to market solutions. In contrast, the first four award criteria in the US SBIR (described in section 3.2.2.7) focus on the (technical) quality of the proposal, while commercialization potential is listed as the fifth award criterion.

4.3.3 Evaluation
In March 2010, Technopolis performed an early evaluation of the Dutch SBIR scheme. Because the Dutch SBIR finds itself at an early stage, the evaluation does not cover an impact assessment, but only input and process aspects. The evaluation is based on the analysis of the SBIR calls, literature, interviews and surveys. In this section, I summarize its findings.

According to Technopolis, the SBIR programme provides the participating departments relatively quickly with multiple innovative solutions. Participating companies are also found positive regarding the functioning of the scheme. They consider that the SBIR awards accelerate their access to the market by enhancing the trust of public and private clients in their innovative products. The same companies also submit that participation in the SBIR programme enables them to get valuable insights into the technical feasibility of the developed product as well as into the competitive strengths of their innovative ideas/solution compared to competitive ideas/solutions on the market.

In addition, the participating companies indicate that the provision of 100% funding of the phases were the key reasons to participate in the SBIR competitions. The SBIR awards were considered crucial for stimulating the development of the products, which would otherwise not be funded by the company itself or by external private investors. The participating companies expect that the received SBIR awards will positively impact the turnover and growth of their companies in the future.

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816 Ibid.
820 In the evaluation this phrase is understood as meaning that no external funding is required. At Phase 2, the availability of external funds is considered a plus for the award of the contract.
Participating companies are less positive on (the information they got on) the role of the participating government agencies in purchasing the product and in providing financial support at the commercialization phase. They express dissatisfaction regarding the disconnection between the ministry department employing the SBIR and the purchasing department that has the potential to act as launching customer. According to them, the SBIR call does not correspond to actual purchasing needs of the government agencies.

Among the participating government agencies, particularly the Dutch Department of Defence (DoD) experiences the friction between PCP and the commercial procurement regulation. The Dutch DoD considers that the design of the SBIR programme does not accommodate its normal procurement practices, because it requires a separate procurement procedure for the purchase of the developed innovations. DoD uses R&D procurement to fulfill its proper needs instead of promoting entrepreneurship and innovation in areas of societal interest. As a consequence, it is especially interested to directly buy the product developed during the SBIR project.

The evaluation report remarks that since 2008, there has been political awareness on the need to ensure the link between public R&D funding through SBIR contracts and commercial uptake of the developed innovations. Participating government agencies have since 2010 been stimulated to act as launching customer (or first customer of newly developed products). Moreover, the government has contemplated support by regulation, certification, standardization or the requirement to pay back the funding of Phase 2 in case of commercial success. These initiatives are still being discussed.

The evaluation also summarizes the reasons invoked by Dutch ministries for not engaging in SBIR projects: the difficulty to re-assign R&D funds from previous programmes to SBIR competitions; the inadequate marketing of SBIR as innovation instrument of the Ministry of Economic Affairs; the lack of understanding of this instrument; the lack of incentives (such as practical support, mandatory set-asides, enthusiast ambassadors etc.) to engage in using this instrument.

Regarding the organizational make-up of the Dutch SBIR, Technopolis concludes that its centralized deployment by the NL Agency presents both advantages and disadvantages. On the one side, experience is gathered and easily spread. On the other side, NL SBIR remains

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825 Technopolis (2010) x.
disconnected from the needs and strategic policy agendas of the different participating
departments.\textsuperscript{830}

Unfortunately, the evaluation does not provide information on the compliance of the SBIR
programme with the legal provisions (such as the presence of R&D activities) or on the
degree of innovativeness of the selected projects. As already mentioned it does not cover an
impact assessment, due to the early stage of implementation of the Dutch SBIR programme.
Another more general study evaluating the result of the overall innovation policy of the Dutch
government (of which the NL SBIR forms part) indicates that up to 2008, no positive results had
been booked in enhancing the innovative capabilities of Dutch companies. SMEs in the
Netherlands have become less innovative between 1998-2008, and the percentage of
innovative SMEs is considerably lower than the EU average.\textsuperscript{831} Although this research does not
specifically assess the NL SBIR, it indicates though that no major impact was achieved by
2008.

The subsequent survey performed by the European Commission in 2010 and the study
performed by Izsak and Edler in 2011 confirm that the NL SBIR has been driven by national
innovation policy motivations and has not favoured EU-wide competition. Furthermore, the
centralized organization by the national innovation agency went hand in hand with limited
involvement of end-users. This approach hinders commercial roll-out of the developed
products.\textsuperscript{832}

In conclusion, the NL SBIR programme has been positively received by the participating
companies for providing access to needed funding and for providing insights into the
technical feasibility of the developed product as well as into the competitive strengths of
their envisaged innovations compared to those available on the market. The NL SBIR is mainly
criticized for the limited involvement of the end-users and for the lack of support at the
commercialisation phase. Participating government agencies with concrete needs (such as
the Department of Defence) have expressed discontent with the impossibility to directly
acquire the developed innovations for use in their organisation.

4.3.4 Projects
This section provides an overview of the main characteristics of NL SBIR funded projects. It is
based on a documentary analysis of all the 37 SBIR calls for proposals which have been
published by NL Agency by January 2014 as well as on a documentary analysis of the
available summaries of phase 2 projects in 8 of the 37 SBIR competitions. I have analysed
these documents on several effectiveness criteria, as identified in Chapter 2: (1) the existence

\textsuperscript{830} Technopolis (2010) 38.
\textsuperscript{832} PCP Survey (2011) 4; Izsak & Edler (2011) 22-3.
of a public end-customer, (2) targeting technological innovations, (3) targeting high-risk or uncertain R&D. I have chosen these 3 criteria from the list of criteria in Chapter 2, based on their relevance for the type of information available in the SBIR calls.

Due to the fact that I have only had access to the calls for proposals, but not to the evaluation of the submitted proposals or to the monitoring of the winning projects, my research is to some extent interpretative. In order to verify some of the conclusions I have conducted individual interviews with two of the NL Agency employees who had been involved in the set-up and implementation of the NL SBIR initiative.833

My first and most important observation is that the majority of the NL SBIR calls are catalytic forms of pre-commercial procurement. This entails that the novel products developed within the frame of the NL SBIR competitions are not intended for public end-customers. Only 5 of the 37 NL SBIR calls analysed have been conducted for a specific public end-user and another 6 may have both a public and a private end-customer.834

My second observation is that the SBIR calls not only cover technical solutions, but also the development of non-technological solutions to societal problems. 21 out of the 37 calls for proposals also target service innovations. Such are: the call for new services to ensure longer independent and healthy living for the elderly; the call for solutions to make travelling by train more attractive; the call for solutions to develop and increase landscape quality and to stimulate a sustainable and profitable recreation sector; the call for solutions to reduce the number of kilometers in transporting agricultural products etc.835 Based on the analysis of the calls, it is not possible for me to research and expose how the projects were evaluated against the R&D services minimum requirements.

My third observation, is that the NL SBIR does not pursue groundbreaking, but merely incremental innovation (e.g. new applications of existing technologies). This observation is based on the analysis of the available descriptions of phase 2 SBIR projects. Illustrative examples are the two phase 2 projects performed as part of the 2009 SBIR call titled ‘Innovatie voor recreatie en ruimte’ (Development and conservation of landscape quality together with the development of a sustainable and profitable recreation sector). The first project regards the construction of a forest hut exclusively of sustainable materials, while the second regards placing labels on several prohibition signs in natural habitats and linking them to a webpage that contains the reasons for the adoption of the respective prohibitive measure.836 Another illustrative example is the outcome of the 2009 SBIR call titled

833 The individual interviews were loosely structured, and consisted exclusively of open-ended questions.
‘Bevorderen en behouden biodiversiteit’ (Foster and maintain biodiversity). The innovative solution to avoid destruction of biodiversity when mowing wet grassland, regarded in this case a mowing machine equipped with caterpillars instead of wheels.837

4.3.5 Conclusions
In the previous sections 4.3.2-4.3.3, I have outlined the major differences between the NL SBIR scheme and its US counterpart. I have pointed out whether these differences are a consequence of European Commission’s guidance on compliance of PCP initiatives with the EU legal rules. The existence of some of these differences was confirmed by the analysis of the SBIR calls in section 4.3.4. By reference the prerequisites identified in Chapter 2, I draw conclusions regarding the consequence of these differences for the effective implementation of the Dutch SBIR.

1. Public R&D funding targets the most experimental and riskiest R&D projects (see Chapter 2).

Some features of the Dutch SBIR programme indicate that the riskiest/most uncertain R&D projects are not the primary target.

First, NL SBIR is not financed from a separate budget, but from the existing R&D budgets of the different governmental departments. These departments do not have the obligation to dedicate a certain percentage of their R&D budgets to NL SBIR projects. The implementation of SBIR projects depends on the efforts of the NL Agency to promote the SBIR scheme within the different government departments.838 This creates the risk that SBIR officers take less risks and favour closer-to-market technologies. That this is the case, has been confirmed by the analysis of the SBIR calls in section 4.3.4.

Second, the Dutch SBIR programme does not require an analysis of the market dynamics in the field that each SBIR call is aiming to advance. Moreover, the award criteria in the NL SBIR lay a stronger accent on the commercialization potential of the proposed solution than its US counterprogramme. This entails the risk that close-to-commercialisation projects are funded instead of early-stage R&D projects. In addition, this raises questions of compliance with the minimum requirement for the legitimate use of PCP, regarding the R&S service character of the contract.

2. Public R&D funding targets small companies, that experience difficulties in obtaining (sufficient amounts of) private capital for experimental/risky R&D projects (see Chapter 2).

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The Dutch SBIR programme targets both large and small companies, that are in principle equally entitled to participate in SBIR competitions. In practice though, the SBIR contracts prove particularly attractive to small and medium sized firms (as shown in section 4.3.1).

In line with the PCP guidance, the Dutch SBIR programme does not aim to cover the full cost of the R&D. This may constitute a disincentive for small companies to participate in SBIR competitions with their riskiest/most uncertain R&D projects. However, in practice the Dutch SBIR programme does not properly enforce the requirement of cost sharing. Although firms are required to offer a discount on the R&D costs in return for retaining the IP ownership, compliance with this requirement is not checked.

3. A high degree of experimentation and tolerance to failure are accepted. (see Chapter 2)

The Dutch SBIR programme in its current set-up does not present the incentives for the NL SBIR officers to adopt such highly experimental and tolerant attitudes. Lower maximum amounts of funding per stage and shorter timelines for the R&D effort are available than within the US SBIR, while no flexibility is provided to deviate from the maximum values. Moreover, the possibility to award an additional, sequential Phase 2 award to the same company for continuing research initiated in the first phase 2 award is not available.

4. Competition is maintained throughout the whole innovation process (see Chapter 2).

The condition of EU-wide competition is officially embedded into the Dutch SBIR. Following alignment with the EU legal rules, the eligibility criterion of Dutch ownership has been replaced by the requirement to conduct the targeted R&D within a EU Member State. In practice, however, the requirement of using the Dutch language during the whole SBIR process functions as a powerful de facto barrier to the participation of firms from other EU countries. In addition, the Dutch SBIR does not embed a serious investigation of whether the envisaged projects significantly advance international state-of-the-art. These factors entail the risk that national companies are protected from European and international competition instead of being challenged to developed advanced innovation that can subsequently compete with success on global markets.

839 The PCP Communication indicates that in order to exclude the applicability of EU State aid rules, the contracting authority should share the R&D costs with the participating company, in accordance with the predefined sharing of IPR.
5. The public purchaser is the technologically sophisticated end-user of the envisaged innovation (see Chapter 2).

The deployment of the Dutch SBIR is centrally organized by NL Agency, in the name of different ministries. Most often neither NL Agency nor a ministry is the end-user of the developed innovation, and no action is taken to involve end-users into the SBIR project. Moreover, the NL Agency’s officers in charge of formulating each SBIR call are not required to be in command of the relevant technical expertise. The consequence is that the NL SBIR grants subsidies that need to comply with the EU State aid rules. This not only challenges the effectiveness of the NL SBIR scheme, but also raises questions of compliance with EU State aid rules (the latter aspect is further discussed in Chapter 5).

6. The public purchaser is willing to pay the premium price for the early use of the developed innovation and is capable to offer a sufficiently sizeable market for the developed innovation (see Chapter 2).

In line with the PCP guidance, the Dutch SBIR does not allow the direct procurement of the developed innovative products or services. Instead, a separate competitive award must be organized in compliance with the applicable Procurement Directive. Moreover, no alternative support for reaching the commercialization stage is available. This is experienced as a disincentive to engage in NL SBIR competitions, by both public agencies (that want to use NL SBIR competitions to develop innovative solutions for their own operational needs) and by participating suppliers.

7. Innovative technologies rather than innovative services are targeted (see Chapter 2).

The NL SBIR funds SBIR competitions for the development of innovative services, without any relation to technologies. Funding R&D in services within the framework of the NL SBIR raises questions on the effectiveness of the public spending, particularly when the minimum requirement that exclusively R&D service contracts be funded is neither assessed nor monitored.

8. A continuous scrutiny/measurement of the impact of PCP is performed and lessons learnt are codified in guidance (see Chapter 2).

The Dutch SBIR has went through an early qualitative assessment. However, this assessment has not led to any major change in the implementation guidance or in the practice.
In conclusion, the Dutch SBIR programme is grounded into an innovation policy mindset which is subsidy-like and national in scope. Partly due to the need to comply with EU rules, partly due to an insufficient understanding of the fundament of an effective R&D procurement, the Dutch SBIR fails to provide the link with the real needs of public end-users and it fails to challenge national companies to advance their innovations beyond global state-of-the-art. Instead it funds close-to-market solutions without prospective public or private end-customers and without a prospective competitive advantage on the European or global market.

4.4 The UK SBRI

4.4.1 Background and evaluation of SBRI (2001-2009)

In 2001, the UK set up the first European scheme for strengthening the demand-side of its public innovation policy, aiming to emulate SBIR’s success in the US. The UK scheme was called the Small Business Research Initiative (‘SBRI’). It encouraged public bodies to invest 2.5% of their external R&D budgets in small and early stage UK technology companies that encountered difficulties in accessing private funding.

Similar to the US SBIR, the SBRI scheme provides for two staged-funding of R&D, for the feasibility study at Phase 1 and for product development at Phase 2. The SBRI scheme covered 100% of the R&D costs with a maximum of £200k per project. However, contrary to the US SBIR, a participating company needed to be able to fund itself 65% of the total costs before any work could start. Grants for multiple projects were excluded.

The SBRI had a very slow start. Until 2005, it had only advertised contracts of around £2m per year instead of more than £100m.

In 2005, in an effort to boost the SBRI programme, the contribution of 2.5% of the external R&D budgets of all government departments was made mandatory by legislation. Despite this measure, Lord Sainsbury’s report revealed two years later that the attitude change needed to make the SBRI programme a success had not occurred. Due to the unclear formulation of the legislation, government departments continued to include into the mandatory 2.5%...
contribution, investments in policy development research (besides scientific and technical research). As a consequence, only 1% of the 200 funded projects placed before 2008 were in line with the definition of R&D as defined by the UK Treasury.\textsuperscript{846}

The reluctant attitude of the government departments to participate in the SBRI scheme was attributed to two main reasons.

\textit{Firstly}, the SBRI scheme was imposed top-down without clarification of its objectives and functioning.\textsuperscript{847} The Department of Trade and Industry inappropriately underscored the aim to stimulate the innovativeness of companies, without highlighting the opportunity offered by the SBRI to help achieve each department’s public objectives. As a consequence, the individual government departments did not feel incentivised to identify needs for innovative technologies (solutions) and did not initiate SBRI competitions.\textsuperscript{848}

\textit{Secondly}, R&D projects did not pass the mandatory value-for-money assessment.\textsuperscript{849}

Lord Sainsbury’s report provided concrete recommendations to bring the SBRI programme more in line with the US SBIR counterpart. The improved SBRI was launched in 2009 and was followed by two early evaluations in 2010, performed by Nesta and Pro-Inno Europe. In the following sections, I will outline these developments.

4.4.2 SBRI – features of the latest version (2009 and later)
a) Introduction

Lord Sainsbury’s 2007 report recommended to bring SBRI more in line with the US SBIR scheme and to direct it towards fulfilling the objectives of the departments involved.\textsuperscript{850} Lord Sainsbury submitted concrete proposals to this end. Departments should publicize up front and on a regular basis the technological areas in which SBRI competitions would be conducted. The SBRI competitions should be strictly limited to funding R&D activities and should exclude projects falling within the field of humanities and social sciences. The SBRI awards should be in the form of contracts, not equity loans or grants, in order to ensure that the governmental

\begin{footnotesize}
\textsuperscript{846} Bound and Puttick (2010) 7.
\textsuperscript{847} Technopolis (2010) 32.
\textsuperscript{848} Technopolis (2010); Ernst & Young (2011); Connell (2006) 2.
\textsuperscript{849} See Connell (2006) 35. The value-for-money assessment should be applied to all procurements, before taking a decision to start the procedure. In summary, the value-for-money assessment entails a check on the viability of the project (whether efficiency, accountability or equity arguments oppose the envisaged procurement), desirability (assessment of the relative benefits compared to other routes which may achieve better outcomes) and achievability (analysis of market interest and availability of market solutions, assessment of the capacity of the contracting authority to manage the envisaged process). In addition, the value-for-money assessment entails factors such as an optimum allocation of risks and calculation of whole life costs which cannot always be complied with in pre-commercial procurements. See also: HM Treasury, ‘Value-for-money Assessment Guidance’ (November 2006) <http://www.hm-treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf> accessed 30 June 2012.
\textsuperscript{850} Lord Sainsbury (2007) 12.
\end{footnotesize}
departments clearly define the objectives of the awarded projects and check whether these have been fulfilled. In this manner, the completion of an SBRI project would become a quality label for SBRI participants to show to future investors and customers.\textsuperscript{851}

Regarding the organisational structure of the SBRI scheme, the report suggested to grant a central administrative role to the Technology Strategy Board (TSB), which is an agency of the UK’s Trade Ministry similar to the Small Business Administration in the US. TSB would be made responsible for publicizing twice a year a list of up-coming SBRI calls and their technological areas. TSB would also be responsible for the administration of the award procedure, while the evaluation of the SBRI proposals would be performed jointly with the awarding department(s).\textsuperscript{852} Finally, Lord Sainsbury recommended to decrease the percentage of the extramural R&D funds to be invested in SBRI competitions to 1,5% and to progressively increase it to 2% and 2,5% in the subsequent two years.\textsuperscript{853}

\textbf{b) Non-mandatory participation}

Based on these recommendations an adapted SBRI scheme was implemented in April 2009, following an initial pilot in 2008.\textsuperscript{854} There are currently 6 to 8 government departments that participate in the SBRI scheme coordinated by TSB. Each department defines its innovation challenges in Innovation Procurement Plans. The declared aim is to define the challenges in a manner that attracts sufficient bidders and that leaves room for the most innovative proposals.\textsuperscript{855}

Participation in the SBRI and budget set-asides are currently voluntary. TSB regularly organises workshops to encourage the implementation of SBRI competitions by explaining its functioning and benefits for the policy objectives of the different departments. In 2011, £20m were set aside by the Department of Health for SBRI competitions. TSB reserved in its turn £10m for co-funding participation by 7 other public bodies such as the Welsh Government, WRAP (working together for a world without waste), NHS London, NHS Midlands and East, the National Centre for the Refinement, Reduction and Replacement of Animals in Health (NC3Rs), the Ministry of Defence and the Department for Environment, Food and Rural Affairs.\textsuperscript{856} The co-financing is meant to incentivise these departments to employ their own R&D funds in SBRI competitions.

\begin{footnotes}
\item [853] Ibid.
\end{footnotes}
c) Decentralised implementation

In line with the US example, TSB was attributed coordination and support roles similar to those of the US Small Business Administration. TSB provides operational support in, for example, defining calls and finding expert evaluators for SBRI bids. It is not clear whether technically advanced project officers are in charge of defining the calls. Nor is it clear whether project officers are allowed flexibility to adapt the topic or amount and time of funding to the needs of each project, as is the case within the framework of the US SBIR. Yet, the more decentralized set-up of the UK SBRI scheme, allows closer involvement of the public end-customers into the R&D process when compared to the NL SBIR scheme.

Independent from the SBRI scheme coordinated by TSB, other PCP-like initiatives have been implemented since 2006 by the Department of Health’s National Innovation Centre (NHS) and the Energy Technologies Institute (set up in 2006 as a private company by global energy companies and the UK Government). They follow the same approach as TSB, but independently implement the whole SBRI process. Interesting to remark is the requirement that the NHS introduced for applicants from other Member States than UK, namely to present proof that the developed products would (also) be commercialized on the UK market.

d) Eligibility criteria

Analogous to the situation in the Netherlands, the UK scheme remains open to small and large businesses. In practice, more than 75% of the funding is awarded to small businesses. Besides small and emerging businesses, academia and charities are eligible for participation, provided they demonstrate access to a route to market for the developed solutions.

It is not clear how compliance with the minimum requirement that only R&D service contracts are eligible for funding through the SBIR is ensured. No market consultation in relation to each SBRI competition is organized. However, the TSB regularly sets up Innovation Platforms (‘IPs’) to identify the range of technologies that can provide solutions to societal challenges in various areas. These IPs are also used to identify the range of policies and regulatory actions needed to bring the novel technologies to the (global) market. Therefore, thorough market research and economic/business research studies are performed.


My research does not separately investigate this initiative, due to the fact that the same approach is followed as the SBRI as well as due to the limited amount of information available. FAQ Department of Health, available at: http://www.london.nhs.uk/websites/Innovation%20documents/SBRI_DH_100_005%20FAQ.pdf.


The market research engages relevant stakeholders (such as businesses, academics, government agencies) in an effort to identify the available technologies and the relevant ongoing R&D projects (a technology roadmap). The commissioned studies are meant to outline which (combination of) policies and legislations can ensure the large-scale deployment of the novel products and which changes in the system (for example in the health care system) are required by the new solutions. Moreover, studies may be commissioned to identify the expectations of the end-users and their perception of the novel solutions (for example the openness of end-users to acquire the new skills to use the new technologies; the privacy objections etc).\textsuperscript{861} However, as already mentioned, the IPs do not cover all the areas in which SBRI competitions are organized and do not seem to be directly linked to the SBRI competitions.\textsuperscript{862} In addition, the market research is performed at the national level.\textsuperscript{863}

e) Phases

In line with the US SBIR, the amount of funding per call has been increased to between £50k and £100k for Phase 1, and between £250k and £1m for Phase 2. However, the timeline for Phase 2 is considerably shorter than the EU PCP prescriptions (up to two years). No express possibility is provided to deviate from the maximum time-limits or from the maximum amounts per Phase. In addition, and similar to the NL SBIR, no explicit opportunity is granted to award multiple sequential Phase 2 contracts to the same company. This entails that tolerance to early failure is not expressly embedded in the programme and that closer to market projects may be favoured.

Commercialization following the completion of Phase 2 is up to the SBRI finalist company. The government does not guarantee the purchase of the developed novel products.\textsuperscript{864} The UK SBRI follows in this respect the PCP guidance and presents thus the same diversion from the US SBIR as the NL SBIR.

f) Percentage of funded R&D costs

Following the US SBIR approach, both Phase 1 and Phase 2 of the SBRI provide 100% of the feasibility and prototyping costs.\textsuperscript{865} As already mentioned in the overview of the NL SBIR, this

\textsuperscript{861} More information can be found at <http://www.innovateuk.org/ourstrategy/innovationplatforms/assistedliving/assisted-living-innovation-platform.ashx> accessed at 4 September 2012.


\textsuperscript{864} TSB Government Challenges (2011) 3.

\textsuperscript{865} TSB Government Challenges (2011) 4.
approach disregards the PCP guidance and raises questions of compliance with EU State aid rules.

g) IPR arrangements and award criteria

IPR arrangements are described in very broad terms (the R&D service provider retains the Intellectual property), while generic award criteria on this issue are not published.

4.4.3 SBRI – 2010 evaluation

There is no impact evaluation of the UK SBRI scheme so far, as it only recently began to run in its current form. Two reports by Pro Inno Europe and Nesta have evaluated the intermediate results of the programme.

The report by Pro Inno Europe shows that both the participating departments and the participating businesses are positive about the functioning and the results of the new programme. Government departments consider that the programme grants them access to innovative ideas and to new suppliers. Participating companies list several incentives to participate in the SBRI. First, the programme offers them the opportunity to closely collaborate with a future customer. Second, the programme ensures funding that could not be acquired from the private market, and does not require matching funding. Third, the programme operates as a quality certification mechanism supporting the future acquisition of venture capital.

The Pro Inno report further lists as strengths of the scheme: flexibility in the support level provided by TSB during the set-up and management of the SBRI competition; short evaluation times and simple procedures; broad involvement of the funding agency with the innovation project compared to subsidies.

The report mentions a few downsides of the scheme. These include: a low number of participating funding agencies; relative high costs of conducting the scheme; the lack of a market consultation that precedes the definition of the SBRI challenge; the support gap at Phase III (the functionaries running the SBRI should encourage the procurement functionaries more to purchase the results of SBRI projects); the lack of budget continuity (no central budget for SBRI is available, while the R&D budgets of the individual departments may suffer cuts due to the recent economic crisis).

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866 TSB Government Challenges (2011) 3.
867 TSB Delivery Plan (2012) 32.
868 Holland (2010); Bound and Puttick (2010).
The Pro Inno Europe Report thus submits that increased political support is needed for the wider implementation of the programme. It also advocates improving the knowledge on the potential benefits and risks of the scheme. Interestingly, the Pro Inno Europe Report points out that there is moderate support among stakeholders for addressing shared European needs through the set-up of a similar programme by the EU (as funding agency). According to the report, such a programme would have the advantage of avoiding the criticism that national public funds are spent without immediate visible results.872

Nesta’s Report finds early indications of success of the SBRI in its new form, based on interviews with SBRI participants and on the analysis of 10 of the 28 SBRI competitions launched between 2008 and 2010. The report reaches conclusions, similar to the InnoPro report’s. SBRI provides much needed funding in a challenging financial climate. In addition, by acting as a ‘lead demonstrator’, the government enhances the credibility of the awarded companies in the face of potential private investors.873 Moreover, the programme creates and boosts market opportunities (such as in the home-retrofitting sector), when deployed on a sufficiently large scale.874

Nesta’s Report expresses the same view as the Pro Inno report, that the decentralized implementation and the procedural flexibility (allowing the adaptation of the SBRI make-up to the needs of individual participating public agencies) constitute strengths of the programme.875 According to the Nesta report, the main shortcomings of the SBRI are the missing uptake of developed solutions by public purchasers and the lack of follow-up up to the commercialization stage. Unlike the Pro Inno report, Nesta’s Report concludes that voluntary participation supported by (financial) incentives from TSB may potentially be more effective than mandatory participation. According to Nesta, thus the risk will be eliminated that contracting authorities will fund unsuitable competitions, just to comply with mandatory spending thresholds as it happened until 2009.

Finally, Nesta’s Report mentions the need to collect relevant data and to regularly assess the impact of the programme. It also suggests to collect success stories and experiences, and to share them among public bodies.876

4.4.4 Projects
By 2010, 28 SBRI calls were published and 1,030 offers were received. A total of 373 contracts were subsequently awarded. 283 of these were Phase 1 contracts and 90 were Phase 2 contracts. The 373 contracts were concluded with 283 suppliers, which indicates that some

872 Ibid.
suppliers won contracts in more than one SBRI competition. The value of the contracts amounted to a total of £24 million. Of that amount, 74% went to SMEs, the remainder to large companies.\footnote{Holland (2010) 10.}

Since 2010, a surge in the number of SBRI competitions can be observed. The total number of published calls by August 2012 was close to one hundred.\footnote{See <http://www.innovateuk.org/deliveringinnovation/smallbusinessresearchinitiative/competitions.asmx> accessed 4 September 2012.} In this section, I discuss some characteristics of the SBRI programme, based on a documentary analysis of 27 SBRI calls published on TSB’s website between October 2012 and December 2013. I analyse the calls against the same criteria as I used with the Dutch SBiR: (1) the existence of a public end-customer, (2) targeting technological innovations, (3) targeting high-risk or uncertain R&D.

Based on this analysis, I can summarize the following observations.

My first observation is that unlike in the Netherlands, most SBRI calls regard the development of innovative solutions for concrete operational needs of the participating public agencies. 19 of the 27 analysed calls were funded by a public agency who could potentially act as end-customer of the targeted innovation. Also interesting to mention is that 13 of these 19 direct PCPs were funded by research agencies of the Ministry of Defense (‘MoD’).

My second observation is that the SBRI programme focuses predominantly on technological innovations. 21 of the 27 calls target exclusively the development of technological innovations. In 5 other calls it appears that services innovations are also accepted. Only 1 calls targets exclusively service innovations.

My third observation is that a large share of the calls expressly target high-risk innovations. Thus, 11 of the 13 calls published by MoD stress that submitted proposals should target high-risk R&D and should aim to develop disruptive innovations. Only 2 calls provide indication that late stage technologies are preferred: one requires the delivery of a prototype within one year;\footnote{See ‘Innovation design for future climate resilience in the infrastructure and built environment sectors’, available at https://www.innovateuk.org/competition-display-page/-/asset_publisher/RqEt2AKmEBhi/content/innovative-design-for-future-climate-resilience-in-the-infrastructure-and-built-environment-sectors?p_p_auth=KwurO9n8 accessed 14 January 2014.} another call requires new applications of existing technologies.\footnote{See ‘land vehicles exercise’, available at https://www.innovateuk.org/competition-display-page/-/asset_publisher/RqEt2AKmEBhi/content/land-vehicle-exercise-lvex-2013?p_p_auth=KwurO9n8> accessed 14 January 2014.}

4.4.5 Conclusions
Since 2008, the UK SBRI has been brought more in line with the philosophy and operational make-up of the US SBIR. In this form, the UK SBRI comes closer to the US SBIR than the Dutch initiative. Hereunder, I summarise the differences and highlight whether they bear relevance
for the potential impact of the programme according to the prerequisites identified in Chapter 2.

1. The public R&D funding targets the most experimental and riskiest R&D projects (see Chapter 2).

   Participation in the UK SBRI is not mandatory. Neither is it mandatory for public bodies to set aside dedicated SBRI budgets. Participation in the SBRI is encouraged through advocacy and co-funding by TSB. This approach was considered suitable for the UK framework, considering the previous experience with mandatory set-asides that did not lead to the expected mind-set change. However, lack of a clear obligation to engage in SBRI projects may inhibit the risk-taking attitude of the public authorities, particularly in times of budgetary crunch.

   The documentary analysis of the SBRI calls provided indications that high risk R&D is targeted, particularly by MoD. It is however unclear whether choice of SBRI projects is preceded by a thorough scrutiny of the technologies already available on the market. TSB regularly performs extended analyses of the stage of development of alternative technologies, market structure and end-users’ preferences. However, they are not performed in direct relation with the SBRI scheme and are not performed in all areas where SBRI projects are published. This entails the risk that close-to-market technologies are funded instead of early stage R&D.

2. The public R&D funding targets small companies, that experience difficulties in obtaining (sufficient amounts of) private capital for experimental/risky R&D projects (see Chapter 2).

   Similar to the Dutch SBIR, the UK SBRI programme targets both large and small companies. But the UK SBRI was also set-up initially to attract small and medium sized firms. Moreover, within the UK SBRI, 100% of the R&D costs are covered. Although, unlike in the US, no profit is covered, this feature shows that the UK SBRI is more aligned with the rationale that small firms have difficulties in finding matching funds for risky or uncertain R&D projects. Full coverage of R&D costs within the UK SBRI provides an additional incentive to small companies to participate in SBRI competitions with their riskiest/most uncertain R&D projects.

3. A high degree of experimentation and tolerance to failure are accepted (see Chapter 2).

   The UK SBRI provides insufficient incentives for the project officers to adopt highly experimental and failure tolerant attitudes. Although the amount of funding per Phase is at the same levels as in the US, the possibility to deviate from the maximum values is
not provided. Neither is the possibility to award multiple sequential Phase 2 awards to promising projects that have not successfully accomplished the prototyping phase in the first SBRI call.

4. Competition is maintained throughout the whole innovation process (see Chapter 2).

Although EU-wide competition is foreseen in the UK SBRI, restricted access to the procurement documentation sheds some doubts regarding compliance with this requirement. In addition, the market scrutiny performed by TSB under the name of Innovation Platforms does not seem to be directly linked to the SBRI competitions and are national in scope. These aspects entail the risk that the SBRI competitions tend to protect national companies from EU and international competition instead of driving them to advance the international state-of-the-art and gain competitive advantages on global markets.

5. The public purchaser is the technologically sophisticated end-user of the envisaged innovation (see Chapter 2).

Implementation of the SBRI programme is more decentralized than the Dutch SBIR and approaches the US SBIR in this respect. TSB provides different degrees of support, but SBRI award and contract management is generally performed by the funding agency. These public bodies are most often also the end-customers of the developed solutions.

6. The public purchaser is willing to pay the premium price for the early use of the developed innovation and is capable to offer a sufficiently sizeable market for the developed innovation (see Chapter 2).

Similar to the Dutch SBIR and conform the PCP guidance, the UK SBRI does not ensure purchase of the developed solutions. Although in the UK there is experience with the Forward Commitment Procurement (‘FCP’, see Chapter 1, section 1.5.4 above), which can guarantee an end-customer of the developed products, FCP has so far been piloted without any link to SBRI or TSB.\footnote{FCP entails a competitive award under the scope of the Procurement Directives and does not guarantee the purchase of the products developed during the SBRI project. See Department for Business Innovation & Skills, ‘Case Study: Forward Commitment Procurement’ (2011) <http://www.bis.gov.uk/assets/BISCore/corporate/MigratedID/publications/C/cs01_fcp.pdf> accessed 2 February 2013.}

7. A continuous scrutiny/measurement of the impact of PCP is performed and lessons learnt are codified in guidance.
The UK SBRI has regularly been assessed and as a consequence thereof, important changes have been included into the programme.

The UK SBRI embeds more prerequisites for effectiveness than the Dutch SBIR. However, it supports to a lesser extent than the US SBIR participating (national) companies to create globally competitive innovations and gain global market shares.

4.5 The Flemish Procurement of Innovation

4.5.1 Description and initiation background

The UK SBRI and the NL SBIR are the first and most established PCP-like initiatives in the EU. In 2006, IWT (Agentschap voor Innovatie door Wetenschap en Technologie, the Flemish innovation agency) followed suit. IWT explored (in the context of a thematic working group of the Innovation Platform on Environmental Issues and Energy) the possibilities to use Flemish Procurement of Innovation (PoI) as a tool to develop the technological base of the Flemish region, to find cost-efficient solutions to important socio-economic problems and to improve public services.882 Because explicit discrimination in favour of Flemish businesses is not allowed by EU competition rules, IWT directed the deployment of PoI towards areas wherein Flemish companies already possess core competencies.883

PoI was defined as procurement of products/services ‘that do(es) not exist, but which could (probably) be developed within a reasonable period of time, based on additional or new innovative work by the organization(s) undertaking to produce, supply, and sell the product being purchased’ (my translation).884

IWT pointed out that the following elements were considered crucial for the successful deployment of PoI:

- political support for the PoI;
- dialogue between the contracting authorities and suppliers;
- sharing of risks and benefits;
- use of foresight techniques;

Subsequently, IWT refined the methodology, partially based on the lessons learnt with the framework of the European OMC-PTP project. Subsequently, IWT refined the methodology, partially based on the lessons learnt with the framework of the European OMC-PTP project. 

PoI as refined by IWT consists of the following steps.

- The impetus for initiating a procurement of innovation must originate in the political ambitions of each participating ministry.

- Each ministry is required to supervise the drafting of a master plan by a contracting authority, in line with the above mentioned political ambitions. The contracting authority should justify in the master plan why it needs a new solution and how this can enhance the effective and efficient execution of its public tasks.

- At this stage, a list of requirements for the desired innovations and a list of Key Performance Indicators are also defined.

Besides defining the business-case for deploying a PoI, the role of a master plan is to signal political commitment for the development of new technologies to the market. The master plan is also expected to raise visibility for the PoI and as a consequence to encourage other contracting authorities to get involved.

- Following the formulation of the master plan, the market is consulted in order to find out whether the desired solutions are available. This is done though a so-called Innovation Platform, established for a period of 6 months.

The function of the Innovation Platform is both to consult the market on the existence of the desired solution and to receive concrete input on defining the procurement specifications. It facilitates an exchange of information between several stakeholders (e.g., procurers, knowledge centres, firms), with the aim to align the private strategies with the public ones. The Innovation Platform is also meant to identify other innovation policy instruments besides or

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885 Idem.
886 The OMC-PTP project was a project funded by the European Commission under FP6 and had the objective to set up pilot programmes involving various forms of procurement of new technology and innovation in the participating countries and provide a platform for exchanges of experiences and feedback. See <http://cordis.europa.eu/search/index.cfm?fuseaction=result.document&RS_LANG=EN&RS_RCN=12564029&q> accessed 4 September 2012.
instead of public procurement, which would be (more) suitable to stimulate the development of the desired solution.\textsuperscript{890}

- The information obtained through the Innovation Platform is processed into an Innovation Matrix: one of the axis will indicate the type of involvement of the government in the procurement of the technology: direct procurement, co-operative or catalytic procurement; the other axis will indicate the stage of development of the required technology: feasibility study, prototype, field tests, commercially available. \textsuperscript{891}

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<td><strong>Integration/Adaptation</strong></td>
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Fig. 3 The structure of a PoI innovation matrix\textsuperscript{892}

Lack of explorative trajectories in the Innovation Matrix is considered an indication that insufficient attention has been paid by the government agency to future socio-economic needs.\textsuperscript{893} The filled-out Innovation Matrix provides support for the choice of the most suitable procurement instrument.\textsuperscript{894} If the technology already exists (e.g. finds itself at the integration/adaptation or diffusion phase on the Matrix) but it is not yet broadly commercialised, commercial procurement should be chosen. When the technology finds itself at an R&D stage (e.g. concept, feasibility, prototype, pilot), PCP should be chosen.\textsuperscript{895}

The entire approach can be visualised as follows:

\textsuperscript{890} Veys et al (2009) 37.
\textsuperscript{892} Source: Presentation of Peter Thevissen en Stephan Corvers, Brussels, January 2007
\textsuperscript{893} Concept van Innovatief aanbesteden voor Vlaanderen 11. IWT Actieplan (2008-2010) 8.
\textsuperscript{894} IWT Actieplan (2008-2010) 7.
\textsuperscript{895} Ibid.
4.5.2 Features of the Flemish PoI

In this section I summarise the PoI in terms of what I consider its defining features:

a) Non-mandatory participation

The policy described in the previous section was approved by the Flemish government in July 2008. Within this context, an Action Plan was drafted that focused specifically on the procurement of R&D. IWT was appointed to pilot pre-commercial procurement calls between 2009 - 2014. IWT received a budget of EUR 10m for realizing this in the period 2008-2010.

The Flemish PoI finds itself at the piloting stage and it is not clear whether the programme may afterwards become mandatory for certain contracting authorities. It is currently voluntary.

b) Centralised implementation

The Flemish PoI is centrally driven by IWT. The centralized set-up of the programme bears a strong resemblance to the NL SBIR. IWT is in charge of organizing Innovation Platforms and of subsequently conducting PCP procedures, in the name of the

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896 Source: The Flemish model for Procurement of Innovation, IWT Actieplan (2008-2010)
897 Hilde Vermeulen, ‘Demand-side innovation policies in Flanders, in Demand/side Innovation Policies’ (OECD 2011)115-22 (Vermeulen (2011)).
commissioning ministry. The ministry decides whether an Innovation Platform needs to be set-up on a certain topic. It subsequently approaches IWT with the request to draft a master plan, to run an Innovation Platform and to run the subsequent pre-commercial procurements. It appears that a contracting authority with concrete needs not necessarily involved in initiating the process but will be invited to participate in the Innovation Platform. Each Innovation Platform is advertised on a EU-wide forum and is open to any relevant stakeholder for participation. Yet, the required use of the Flemish language will discourage companies from other Member States to participate.

More in line with the US SBIR, IWT employs personnel with relevant technical expertise depending on the needs of each project. Such technical expertise is particularly used during the Innovation Platforms to determine the degree of technical innovation needed for the development of the desired solutions.

c) Eligibility criteria

The activities that may be eligible for award are not defined. It is therefore not possible for me to conclude whether these are in line with the definition of R&D, as outlined in the Frascati Manual or as used within the US SBIR. IWT is, however, in charge of supervising compliance with the minimum legal requirements governing PCP throughout the whole process.

d) Phases

The Flemish PCP procedure is divided into 3 phases: feasibility study, prototype and pilot project. For each phase, IWT will make the following budgets available: up to 80,000 euro for the feasibility study, up to 500,000 euro for prototyping and between 750,000 euro and 1.5 million euro for the pilot. Each client ministry may provide additional budgets. These amounts are in line with the US SBIR approach.

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901 And the long timeline of an Innovation Platform combined with non-reimbursement of participation costs may discourage companies from other Member States to participate. See also: Chapter 5.2, http://www.innovatiefaanbesteden.be/juridisch> accessed 10 November 2013.
904 Vermeulen (2011).
No regulatory guidance is provided on the time constraints for the different Phases, and neither is such guidance available on the possibility to fund multiple sequential Phase 2 awards to the same contestant.

Similar to the NL SBIR and the UK SBRI, the Flemish programme does not offer the possibility for a contracting authority to directly purchase the results of the pre-commercial procurement. No alternative support is provided for the commercialization phase. However, IWT requires the involved contracting authorities to sign a letter of engagement by which they commit to organize a commercial procurement in order to purchase a solution such as the one targeted by the PCP.906 It is not clear in how far this commitment is enforceable.

\[d\] Sharing arrangements for IPR and R&D costs

The Flemish programme does not define a pre-set manner to share IP rights or other benefits. This is decided on a case-by-case basis. Depending on the type of project, the government may also choose to share with the R&D service provider the profits made at later commercialization stages. It is also not pre-defined how the government shares R&D costs with the R&D service provider. The guidance for conducting pre-commercial procurement indicates that a market price will be paid by the government, in accordance with the division of IP rights. No specific mechanism to ensure compliance with this requirement is provided.907 The programme guidance does not exclude that state aid is granted additionally. Ensuring compliance with EU State aid rules is decided on a case-by-case basis as well.908

The PoI scheme has not yet been officially notified to the European Commission and has thus not been checked for compliance with the EU legal rules. IWT plans to do that after the pilot is closed in 2014.909

4.5.3 Projects

By 2011, the 13 government agencies involved in the PoI had proposed 48 PoI calls, out of which 15 were selected.910 By January 2014, 12 of these 15 projects had been deployed by IWT. I performed a documentary analysis of the information available on the IWT website regarding these 12 projects. A preliminary observation was that 6 of the 12 projects had been

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909 Ibid.
either stopped due to lack of funding or had proceeded as a commercial procurement following the conclusion of the innovation platform that desired solutions were already available on the market.

I analysed the remaining 6 projects that were chosen for a PCP trajectory against the same criteria as I used for the Dutch SBIR and UK SBRI: (1) the existence of a public end-customer, (2) technological innovations as target, (3) high-risk or uncertain R&D as target. Based on this analysis, I outline the following observations.

My first observation is that the majority of the PCP calls (4 out of 6) target solutions for a potential public end-customers. However, in 3 of the 4 cases in which a public end-user is conceivable, the PCP is not conducted by the end-user, but by a ministry together with IWT.

My second observation is that the majority of the PCP calls (4 out of 6) target exclusively technological innovation.

My third observation is that the calls do not target high-risk innovations. To illustrate this, I will describe 3 of the 6 PCP projects.

The first project within the pilot programme was proposed by the governmental agency of Socio-Cultural Work. The project regards the development of a prototype for an e-book platform, which should provide a permanent and secure inventory of digital editions of Flemish books. This e-book platform is intended for exploitation by editors, book traders, libraries and content collectors etc. The project was financed with EUR 500,000 by the Ministry of Innovation and Culture.911

The innovative element of this project regarded integrating functions of import, inventory, exploitation of text with security issues regarding the content and the need to ensure a full text search facility. The platform envisages in addition “an archiving function for a future cultural heritage centre and a coding module to produce different formats”.912 I find it very difficult to read anything beyond standard and well-established technology in this project. The market failure that the government invoked in this case regards the lack of private funding for digitalizing Flemish literature, which entails the danger of loss of diversity for the readers.913

A second project finds itself at the market scouting stage and presents already difficulties in receiving the needed input from relevant stakeholders regarding the (technological) areas

that may be advanced beyond state-of-the-art through a PCP.\textsuperscript{914} The aim of the project is to develop a website that can catalyse the development and commercialization of environmentally-friendly products and services. Although the innovation platform was set-up at the end of 2012, this project has one and a half year later not moved beyond this stage, which suggests that it may be discontinued in the near future.

The third project that presents indications that no high-risk technological innovation is targeted, regards the construction of energy-neutral buildings.\textsuperscript{915} This project explores 4 sub-topics:\textsuperscript{916} (1) testing the scale-effects on costs, by building 6 (almost) energy-neutral prototype houses with existing technologies; (2) technological solutions for energy-saving windows, doors and walls in monuments, in which the focus is on existing innovations and quick-wins; (3) development of a life-cycle cost (‘LCC’) method to calculate the cost of a construction project; (4) exploring the potential cost savings resulting from the application of a cooperative investment model (‘ESCO-model’) in a school renovation.

None of the envisaged sub-projects describes the technological area that should be advanced beyond state-of-the-art. They target application of existing technologies in already planned renovation projects. The third sub-project has already been stopped following the conclusion that no R&D services were involved.\textsuperscript{917} Moreover, there is no recent information on the status of implementation of the other 3 sub-projects.\textsuperscript{918}

In conclusion, the Flemish PoI scores poorly in deploying PCPs. Of the 3 remaining projects one still finds itself at the market consultation phase.\textsuperscript{919} It remains to be seen whether this project will continue as a PCP. This leaves the Flemish PoI with only 2 PCPs initiated since 2008. These 2 projects are at an early stage: the PCP contracts have been awarded in the second half of 2013. The first one project targets the development of an innovative software capable to support the sub-titling of Dutch speaking television programmes,\textsuperscript{920} while the other one targets innovative technologies for greenhouses.\textsuperscript{921}

\textsuperscript{914} See \url{http://www.innovatieaanbesteden.be/project/katalytisch_eco-aankopen} accessed 15 January 2014.
\textsuperscript{915} See \url{http://www.innovatieaanbesteden.be/project/energieneutraal_bouwen_zonder_meerkost/documents} accessed 15 January 2014.
\textsuperscript{917} See \url{http://www.innovatieaanbesteden.be/project/energieneutraal_bouwen_zonder_meerkost} accessed 15 January 2014.
\textsuperscript{918} The latest document dates 21 May 2012. It is unclear whether PCP calls for proposals have been published or whether continuation of these projects is under discussion.
\textsuperscript{919} See \url{http://www.innovatieaanbesteden.be/project/hydrografische_peilingen_in_ondiep_water_over_grote_gebieden} accessed 15 January 2014.
\textsuperscript{921} See \url{http://www.innovatieaanbesteden.be/project/op_weg_naar_een_duurzamere_glastuinbouw_in_vlaanderen} accessed 15 January 2014.
4.5.3 Conclusions

The Flemish PoI scheme finds itself at an incipient stage. In its current form there are shortcomings that may affect the potential impact of the program, according to the parameters identified in Chapter 2. I hereunder outline these shortcomings.

1. The public R&D funding targets the most experimental and riskiest R&D projects (see Chapter 2).

The Flemish programme has so far been deployed as a pilot. In 2014 a decision should be taken regarding the continuation of the programme. As a consequence, the deploying entity, IWT was divided between the need to comply with the EU legal constrains regarding open competition and value of funded R&D services, on the one side, and the need to attract participation of government agencies that are more interested in supporting local companies than advancing the EU Lisbon agenda, on the other side. This made it difficult for IWT to develop effective, transparent and objective PoI practices.

The result is a muddled programme which is biased towards closer to market projects. That this is the case was confirmed by the analysis in the previous section.

2. A high degree of experimentation and tolerance to failure are accepted (see Chapter 2).

The Flemish programme is divided into three phases (feasibility, prototyping and pilot). The amounts of funding per stage are flexible, but depend on the financial commitments of the commissioning ministries. In addition, similar to the other two national programmes analysed in this chapter, no possibility to award multiple Phase 2 contracts is provided. This points out the limited degree of experimentation and tolerance to failure embedded into the Flemish program. And in practice, not a single high-risk innovation project could be found among the 12 projects investigated.

3. Competition is maintained throughout the whole innovation process (see Chapter 2).

The Flemish programme embeds a market consultation, related to each PCP competition (the so-called Innovation Platform). The market consultation is advertised through EU-wide means and participation is open to foreign companies. This could be an important strength of the programme. However, the strong national policy interests of the participating funding agencies induce to require the use of the Flemish
language and to discourage in practice foreign companies from participating. This entails the risk that instead of driving national companies to compete with the international state-of-the-art practices and to thus gain global competitive advantages, it will merely protect national companies from foreign competition and waste public funds on solutions that already have been made available elsewhere.

4. The public purchaser is the technologically sophisticated end-user of the envisaged innovation (see Chapter 2).

The Flemish programme is centrally run by a national innovation agency that is not an end-user of the developed innovations. The (private) end-users are not involved in the PCP procedure, they participate in the Innovation Platforms. As a consequence, the programme resembles more of a supply-side subsidy scheme than a demand-side instrument.

5. The public purchaser is willing to pay the premium price for the early use of the developed innovation and is capable to offer a sufficiently sizeable market for the developed innovation (see Chapter 2).

Similar to the Dutch SBIR and the UK SBRI and in line with the PCP guidance, the Flemish programme does not allow the direct purchase of the developed innovations by the participating public authorities. Moreover, no additional support is provided for the commercialization phase. But letters of engagement to purchase solutions with the performance levels and functionalities of those developed through PCP are signed by the involved contracting authorities. However, the fact that many solutions are not developed for a public end-customer weakens the value of this feature.

In conclusion, the Flemish Pol programme lacks important prerequisites for an effective implementation. The fundaments of the programme are vested in national interests to provide funding to national companies, leading to what I called a muddled Pol. Due to insufficient political clarity and backing, the future of the programme depends on an opaque political evaluation of the initial piloting phase. As a consequence the pilot has turned towards closer to market R&D projects and has achieved poor results in deploying R&D procurement.
4.6 EU support for PCP

4.6.1 Basis for European Commission’s action

By drafting the PCP, the European Commission expected to stimulate contracting authorities to contribute to the European innovation agenda from the demand-side. Moreover, the European Commission intended to ensure that this demand-side policy instrument supports and exploits the benefits of EU-wide competition and of EU-wide markets.

In contrast with these expectations, PCP-like initiatives have exclusively been implemented as national or regional programmes, and in a very limited number of Member States. Although some of the challenges issued in different programmes are functionally related or even almost identical, none of them resulted in trans-national cooperation and neither did they result in EU-wide competition. On the contrary, where effective, procedures are conducted in the national languages of the funding agencies. This approach constitutes, particularly in the Netherlands and Flanders, a strong and legitimate barrier against participation by companies from other EU Member States.

Moreover, the PCP-like schemes under consideration present features that are not in line with the requirements for an effective demand-side instrument such as identified in Chapter 2. Things are complicated by the consideration that these schemes are potentially in breach of EU State aid legal rules.

PCP in its cross-border form as envisaged by the PCP Communication remained by 2011, largely unknown among individual contracting authorities in most EU Member States.

In the study preceding the adoption of the PCP Communication in 2007, it was anticipated that conducting a PCP procedure entails (legal, technical and organisational) risks that contracting authorities are not willing to take. The study warned that the EU would need to incentivize the contracting authorities to apply PCP procedures, particularly in areas of common European interest, where cross-border collaboration is desirable in order to ensure interoperability and create economies of scale.

4.6.2 European Commission incentivizing actions

Arguably, there are multiple reasons for the reticence of individual contracting authorities to engage in cross-border PCP procedures. Some of these have been discussed in section 4.2.

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922 For example, the call for assisted living and protective equipment for military combat in urban environments is practically identical within the Dutch SBIR and the UK SBRI. See <www.innovateuk.org/deliveringinnovation/smallbusinessresearchinitiative.asp> accessed 4 September 2012.

923 PCP Survey (2011).

They cover: lack of technical knowledge; contracting authorities’ aversion to risk (particularly when PCP-like initiatives are not institutionalized and are not mandated); lack of clarity around the distinction between PCP and regular subsidies and the accompanying concerns regarding compliance with EU State aid rules; the irrelevance for regular contracting authorities when subsequent direct purchase of the developed innovation is not allowed; the complexity of the procedure itself (to find matching partners in other Member States, to define common requirements and to coordinate common procedures etc.).

The Commission has since 2009 acted upon some of the difficulties encountered by contracting authorities when deciding to conduct PCP. Initially, the Commission financially supported the formation of procurer groups and of networking activities related to PCP, under the FP7 and RFEC programmes. This appeared soon to be insufficient, as the support did not lead to the emergence of the good practices expected.

**Funding PCPs**

As a consequence, the European Commission took the initiative to fund, under the FP7 programme, all of the organizational costs and part of the contractual costs of PCPs conducted by European consortia of public authorities. Call 7 allocated, for example, in 2011, 6M euro to joint PCPs in services for mobile access to patient health info and to robotic solutions for ageing well. Call 8 made in 2012 a budget of 3 M euro available for joint cross-border PCPs in the area of ‘Photonic technologies’ aimed at improving quality and/or efficiency of public services. Additional funding for PCP networking has also been made available under Call 8 covering any sector of interest.

Funding of joint cross-border PCP has also been made available under the FP7 Capacities – Research Infrastructures work programme (INFRA-2012-2.3.1) on the third implementation phase of the European High Performance Computing (HPC) service organized through PRACE (Partnership for Advanced Computing in Europe). PCP was considered a suitable instrument to advance the state-of-the-art in HPC systems, as the public sector is an important procurer of such systems. Moreover, bundling resources and demand at the EU-level is considered to have the capability to give a boost to the EU HPC sector, which is considered unattainable for Member States individually.

There are currently 8 joint PCP projects funded by the European Commission. The first awarded project is SILVER, a collaboration between several European cities to stimulate the development of robotic solutions to support independent living for the elderly. The project

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started in January 2012 and is planned to be completed after 45 months (none of the projects is thus close to conclusion).

The European Commission intends to continue the funding of collaborative PCPs. For example, pre-commercial procurement was introduced as a new funding instrument in Horizon 2020, the new framework programme for EU support to research and innovation for the period 2014-2020. Horizon 2020 will financially support PCPs conducted by consortia of contracting authorities from different Member States. EU institutions or EU funding bodies may also participate in such consortia.\footnote{See <cordis.europa.eu/fp7/ict/pcp/policy_en.html> accessed 5 November 2013.} For 2014-2015 EUR 130-140 million have been reserved for collaborative PCPs and collaborative procurements of innovation (PPI).\footnote{Lieve Bos, Presentation in Krakow 14 November 2013, <http://ec.europa.eu/enterprise/policies/innovation/files/public-procurement/krakow-2013-bos_en.pdf> accessed 15 December 2013.}

**Data collection**

Besides funding of collaborative PCPs, the Commission has also offered funding in 2011 for collecting data on R&D expenditure through procurement across Europe. This was meant to support better informed decision-making about public intervention that encourage innovation from the public demand-side, such as through pre-commercial procurement.\footnote{Quantifying public procurement of research and development of ICT solutions, Deadline: 16 September 2011 <http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=7157> accessed 2 February 2013.} The project is expected to yield results in the beginning of 2014. The Commission intends to collect this type of data systematically in the future.

**Further studies on EU involvement**

In addition, the Commission has explored new ways to incentivize the broad implementation of PCP. In 2011, the European Commission commissioned a study to explore the support for EU involvement in PCP-type of procedures. This study concludes that contracting authorities across the EU envisage a coordination role for the EU in cross-border projects, particularly in learning activities and in drafting procurement specifications. Interviewed contracting authorities consider though that defining the needs and assessing the bids should be left to the Member States. A mix of competences is favoured also in setting the topics of the procurement initiatives, both falling within the broad common-EU policy objectives, as well as driven by the concrete needs of the contracting authorities.\footnote{John Rigby, Patries Boekholt, Abby Semple, Jasper Deuten, Ramona Apostol, Stephan Corvers, Jakob Edler, ‘Feasibility study on future EU support to public procurement of innovative solutions: Obtaining Evidence for a Full Scheme’ (2 February 2012) Feasibility Study (2012) <http://ec.europa.eu/enterprise/policies/innovation/policy/lead-market-initiative/files/meeting-procurement-feb2012/study-eu-support-public-procurement-innovative-solutions_en.pdf> accessed 2 February 2013.}

Signals regarding support for a more hands-on involvement of the EU in PCPs are also perceived in national studies. EU involvement in stimulating EU-wide competition in PCPs...
around challenges common to more than one Member State, is seen as an important pre-
condition to escape the ‘political criticism that national tax money goes to foreign 
companies’. There has been so far no analysis of the possibility to combine the national 
and the EU initiatives on PCP-like schemes. This analysis falls outside the scope of this research 
as this falls within the ambit of institutional economics.

The new Procurement Directives

Most recently, the Commission has taken the initiative to include in the new Procurement 
Directives default provisions for cases of cross-border collaborations in (pre-commercial) 
procurement. The new Procurement Directives also introduce the Innovation Partnership 
procedure, allowing contracting authorities to purchase R&D and the resulting innovations. A 
more detailed discussion on the Innovation Partnership procedure and on its relation to PCP 
can be found in Chapter 5, section 5.4.4.

4.7 Conclusions

This chapter has analysed the state of implementation of collaborative PCPs as envisaged by 
the European Commission in its 2007 PCP Communication. It concluded that by 2011, there 
were practically no examples of collaborative cross-border PCP projects.

The studies evaluating the state of implementation of PCP identified the following reasons for 
the limited appeal of PCP to contracting authorities:

- lack of technical knowledge;

- contracting authorities’ aversion to risk particularly when PCP(-like) initiatives are not 
imstitutionalized and are not mandated;

- lack of clarity around the distinction between PCP and regular subsidies and the 
accompanying concerns regarding compliance with EU State aid rules;

- the irrelevance for contracting authorities when subsequent direct purchase of the 
developed innovation is not allowed;

- the complexity of a cross-border procedure (to find matching partners in other 
Member States, to define common requirements and to coordinate common 
procedures etc.).

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932 Article 38, Joint procurement between contracting authorities from different Member States, Directive 2014/24/EU of the European 
In the second part, this chapter analysed the forms of PCP that have been set-up at the national level. These were being implemented by innovation agencies in three Member States: the Netherlands, the UK and Belgium. The analysis has revealed that important differences persist between these schemes and the US SBIR scheme. Most of these differences can be related to missing requirements for the effective implementation of R&D procurement, as identified in Chapter 2. Evaluation are planned in 2014 for all three programmes. In view of the poor results booked so far, there is a real chance that they will be discontinued.

The main shortcomings of the analysed national PCP-like schemes are outlined below.

1. The participation is voluntary in all the national PCP-like schemes analysed in this chapter. The implementation of the schemes depends on the promotion efforts of the innovation agency running or coordinating the scheme. Arguably, this increases the pressure to come up with success stories and consequently closer-to-commercialization projects are preferred. As a consequence, the PCP-like projects do not target the riskier and the more uncertain R&D projects, which could benefit most from the public funding.

2. The same risk that close to commercialization projects are chosen may also occur when no market research is performed. Definition of advanced requirements that go beyond the international state-of-the-art was identified in Chapter 2 as crucial to creating global competitive advantages for firms participating in R&D procurement. This is not achieved when market research is limited to national participants.

3. The centralized deployment of the Dutch and Flemish programmes and the consequent limited involvement of the end-customers and of the end-users are important shortcomings. Most competitions within these two programmes target solutions for the private end-customer, which limits the prospects of early adoption of the developed innovation.

4. Moreover, of the three analysed national PCP-like initiatives none allows for the direct purchase of the developed innovation by public authorities. This is in line with the EU legislation on public procurement, but in contrast to the US SBIR and to the recommendation to encourage early adoption of innovations in order to enhance the global competitive advantages of the innovating companies.

5. The timelines envisaged for the R&D procurements in all three schemes are relatively short compared to the EU guidance and to the US SBIR practice.

6. Moreover, limited flexibility is embedded into the three national programmes to deviate from these timelines and from the maximum amounts of funding per Phase.
6. Besides that, none of the 3 programmes provides the possibility to award multiple sequential Phase 2 awards to the same company. This indicates that a high degree of experimentation and tolerance to failure are not embedded into the programmes, although they are important prerequisites for successful demand-side R&D funding.

7. The NL SBIR and the Flemish PoI and to a less extent the UK SBRI, award R&D contracts for the development of close-to-market products and the development of innovations in services. According to the conclusions in Chapter 2, innovation in services does not occur as a result of R&D projects, and the drivers of innovation in services are not well understood. This raises the question whether spending of public R&D funds is justified.

8. Finally, the individual Member States that have so far implemented PCP-like programs are motivated by the desire to support national companies. This desire can be by itself legitimate, yet may lead to muddled programs. When this occurs, they will miss important characteristics that are needed to achieve their EU aims.

Since 2007, the European Commission has taken action to boost the implementation of PCPs conducted in collaboration by contracting authorities from different Member States. It has not attempted to harmonise the national programmes, as it lacks the necessary competence. However, the Commission has set the boundaries for these initiatives in its 2007 PCP Communication, in line with the EU rules on State aid and freedom of movement. Since 2009, the Commission has also provided funding for exchanges of experiences on PCP projects and since 2011 it has provided funding for the organizational and contractual costs of collaborative PCPs. More recently, it has focused on funding data collection and measurement studies and proposing legislative amendments.

The funding of collaborative PCPs is the most important attempt of the European Commission to create good practice and to enhance collaboration between contracting authorities from different EU Member States. It is considered to be the only tool available to the European Commission to steer the national practices into the desired direction. It has the potential to complement the national PCP-like initiatives and to leverage the support for EU coordinated action in the PCP area. It is unclear though whether the European Commission has a clear vision on the complementarity and consistency of the national and EU initiatives. Moreover, whether the projects co-funded by the EU embed the required conditions for achieving the targeted impact could not be assessed in this research, due to the early stage of the co-funded projects and the lack of information.
The European Commission has moreover not yet paid attention to the large disparities that are being created between the leading Member States in the area of R&D and innovation and the laggards.

My overall conclusion is that there has not yet been any confirmation that the EU initiatives aimed at boosting investments in R&D have had any result. Despite this, the EU continues (and even intensifies) these initiatives – seemingly unaware of the reasons why these initiatives tend to fail in practice.

In the next Chapter 5, I will focus on the most important barriers envisaged by individual contracting authorities to the wide implementation of PCP. I will investigate to what extent legal rules are the origin of these barriers and I will explore possible solutions.